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**Stantec**

**Via Courier**

**August 3, 2010**

Ms. Kimberley N. Tisa  
PCB Coordinator/Environmental Scientist  
Office of Site Remediation and Restoration  
US EPA Region 1  
1 Congress Street, Suite 1100 (CPT)  
Boston, MA 02114-2023

**Re: Hybrid Self Implementing Plan (SIP)/Risk Based Approval Plan  
PCB Soil Remediation  
78-98 Rebesch Drive  
North Haven, Connecticut**

Dear Ms. Tisa:

Stantec Consulting Services, Inc. is pleased to submit this Remedial Action Plan (RAP) for soil remediation at 78-98 Rebesch Drive in North Haven, Connecticut.

As required by 40 CFR Part 761.61 (a)(3)(E), a certification is also attached and signed by the property owner (Andrew Dixon) and responsible party (WEI North Haven Limited Partnership). We have recently found that the Connecticut Resource Recovery Authority (CRRA) Hartford Landfill can accept PCB wastes of 30 parts per million or less at a sharp discount to regular disposal costs for landfill closure purposes. We anticipate that a large volume of the waste that we plan on excavating can be disposed at this facility. As a result, we would greatly appreciate expedited review of the work plan so that we can exploit this discounted disposal window.

Please contact me at (860) 948-1628 if you have any questions.

Very Truly Yours,

John H. Insall, LEP  
Senior Project Manager

Attachments: Remedial Action Plan (RAP) for Soil Remediation



## **REMEDIAL ACTION PLAN FOR PCB IMPACTED SOIL**

**Former U.S. Surgical Site  
78-98 Rebesch Drive  
North Haven, Connecticut**

**Remediation ID No. 4624**

**July 29, 2010**

*Prepared by*

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## 1.0 INTRODUCTION

### 1.1 Purpose

The purpose of the Remedial Action Plan (RAP) is to propose a plan for the removal and management of soil impacted with polychlorinated biphenyls ("PCBs") in accordance with the remediation requirements for PCBs contained in 40 CFR Part 761 and State of Connecticut regulations. This RAP has been prepared as a risk based cleanup plan submitted to EPA pursuant to 40 CFR 761.61(c) for soils beneath the 98 Rebesch Drive building where PCBs > 10 parts per million (ppm) are proposed to remain, and a self implementing procedure (SIP) under 40 CFR 761.61(a) for soils in exterior soil locations, where PCBs >10 ppm will be removed.

The plan is a risk based approval plan because it presents a strategy to manage PCBs >10 ppm in place under the existing buildings. By definition, these are considered high occupancy areas, despite the fact they are inaccessible, because workers in the building work 40-hour shifts within the building. For exterior soils where PCBs >10 ppm will be removed, the RAP specifies a mechanism to complete remediation in these areas following the prescriptive remediation requirements of 40 CFR 761 Part 761(a), where the soils are considered low occupancy because workers do not work in these areas, other than for transient access to buildings.

The RAP is also designed to bring extractable total petroleum hydrocarbons (ETPH)(coincident with low levels of PCBs), into compliance with regulatory criteria under the State of Connecticut Remediation Standard Regulations (§22a-133k-1 through 22a-133k-3)("RSRs").

The RAP includes several components. These include the excavation of PCBs >10 ppm in paved parking areas, excavation of PCB impacted soil >10 ppm beneath landscaped areas outside of building footprints, excavation of ETPH impacted soil that is coincident with PCBs in the same areas, management of remaining PCBs <10 ppm and ETPH in place outside of building footprints, and management of PCBs >10 ppm and ETPH beneath the footprint of the existing buildings. To manage ETPH exceeding the Industrial/Commercial Direct Exposure Criteria (IC DEC) and GB Pollutant Mobility Criteria (GB PMC), an Engineered Control Lite (ECL) is proposed.

The RAP discusses excavation strategies, in-situ management of residual PCBs and ETPH, and the use of an ECL to achieve compliance with the RSRs for ETPH. Specifically, the RAP will address how the risk based RAP approval will be protective of human health and the environment, and how the ECL will address ETPH exceedances of both the IC DEC and GB PMC.

An Environmental Land Use Restriction (ELUR) is then proposed to avoid disturbance of the ECL and restrict the site to Industrial/Commercial use.

### 1.2 Scope

The RAP prepared by Stantec was designed to address PCBs and ETPH in soil at the site. ETPH impacted soil has resulted in a minor release of benzene and other aromatic volatile organic compounds (VOCs) to groundwater in the vicinity of the 78 Rebesch Drive southern

parking lot. The RAP also addresses low level VOC impacted groundwater in the release areas, and describes how the same concentrations of VOCs in groundwater demonstrate that ETPH is not leaching constituents that create an unacceptable risk to human health and the environment.

### **1.3 Project Structure**

Stantec Consulting Services Inc. has been retained by WEI North Haven Limited Partnership to assist with technical evaluation of PCBs, ETPH, and related VOCs in the environment.

Any technical questions regarding the work plan shall be directed to the preparer of this plan:

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Approvals or written comments or decisions regarding this work plan shall be directed to:

Adam D. Winstanley  
WEI North Haven Limited Partnership  
c/o Winstanley Enterprises LLC  
150 Baker Avenue Extension, Suite 303  
Concord, MA 01742

## **2.0 BACKGROUND INFORMATION**

### **2.1 Site Description**

The property consists of 13.6-acres of land and two commercial and light industrial structures. The property is located at 78-98 Rebesch Drive in North Haven, New Haven County, Connecticut (latitude 41.3438, longitude -72.8663). Site features include two small drainage structures (called ponds) that are used for the discharge of stormwater from adjacent Interstate 91, small wetland like areas associated with each, paved parking areas, and landscaped lawns.

The buildings are currently occupied by Petra Construction (office and shop), the Harding Company (steel products), the former Aquaware of America, Inc. plumbing supply and showroom (until 2010)(now vacant), Exide Battery (battery sales), and Not the Same Stuff (warehouse and fulfillment). Former tenants include United States Surgical Company (USSC)(repair laboratory), Connecticut Handivan (ambulatory vehicle garage), and Rebesch Motorsports (racing equipment and parts).

### **2.2 Site History**

From the 1920s to late 1950s, the site was occupied by the Montowese Brick Company. The brick company used on-site clay deposits as feed stock for the brick plant. The clay was excavated from the eastern, central, and western portions of the site creating a pond which covered most of the property. The brick plant operated a building at the western edge of 78-98 Rebesch Drive. Most of the brick plant was located off-site and in the approximate location of I-91 (adjacent to the west).

In the late 1950s, the Montowese Brick Company ended their operations and the Montowese Tool Company began operating a tool company in the building. The Montowese Tool Company operated at the western edge of the site until 1972 when the building was demolished. The remainder of the site remained as a pond until the 1980s. In the 1980s, the Elm City Construction Company filled the ponds and used the site to store sand, gravel, and rock. In 1988, Paul Rebesch purchased the site and constructed the existing light commercial and industrial buildings. The buildings have been used by a variety of tenants since construction. The United States Surgical Company (USSC) operated a small repair shop and printing facility at the site from 1988 to 1998. USSC generated small quantities of hazardous waste. As a result, the site was identified as an Establishment and subject to the Connecticut Transfer Act.

In 1995, Rizzo Associates conducted soil and groundwater sampling in connection with a real estate transfer. Rizzo Associates identified artificial fill and low levels of petroleum in the fill.

During a 1995 property transfer, the certifying party filed a Form I to indicate that no releases of hazardous wastes had occurred at the site (releases of petroleum did not preclude filing of a Form I under the Transfer Act in 1995).

In 2001, an additional soil and groundwater investigation was conducted by Rizzo Associates to support another property transfer. Petroleum hydrocarbons were again detected in soil and groundwater and attributed to the artificial fill. Chlorinated solvents were also detected in groundwater at the southern-side of the site. Rizzo Associates attributed the chlorinated solvents to an off-site release. The certifying party filed a Form I in connection with the 2001 property transfer since no hazardous waste releases were identified (releases of petroleum still did preclude filing a Form I under the Transfer Act in 2001).

In 2004, the DEP rejected the 2001 Form I filing due to the presence of chlorinated solvents in wells at the southern side of the site (RIZ-7, RIZ-8, RIZ-9, and RIZ-10). In response, the certifying party (WEI North Haven Limited Partnership) submitted a Form III and Environmental Condition Assessment Form (ECAf). In 2004 and 2005, Rizzo Associates conducted additional investigations and confirmed that no on-site source of chlorinated solvents existed. The additional investigations included soil sampling, groundwater sampling, and an analysis of vertical hydraulic gradients and groundwater flow patterns for both shallow and deep groundwater. Rizzo Associates again determined that the source of chlorinated solvents was the off-site Aura/Arber/Eton Fujikura site. A review of the historical data prepared by SECOR suggested that the occurrence of chlorinated VOCs in wells at the south-side of 78-98 Rebesch Drive had a strong correlation to the operation of an air sparging and soil vapor extraction (SVE) system at the Aura/Arber/Eton Fujikura site. As a result, it appears that the VOCs in groundwater may have been driven by the nearby air sparging/SVE system.

During the excavation of petroleum impacted soil in 2007 to the north of the 98 Rebesch Drive building, STANTEC collected a waste characterization sample to facilitate the disposal of petroleum impacted soil. The analytical results identified PCBs in the soils that were excavated. The finding prompted additional investigation for PCBs during two episodes. The first episode was a site-wide soil boring and sampling effort designed to identify areas where PCBs and ETPH were present. After the first sampling episode, STANTEC discussed the site with Kim Tisa of EPA Region 1. Based on discussions with EPA, STANTEC developed a PCB sampling protocol to evaluate PCBs in three zones where PCBs had been detected. The second episode followed a protocol that included a 20 x 20 foot soil sampling grid in areas where low levels of PCBs had been detected. Based on the results of these investigations, STANTEC identified PCBs above 10 ppm in three areas at the site, and PCBs above 50 ppm immediately adjacent and beneath a small portion of 98 Rebesch Drive.

### **2.3 Indoor Air Sampling**

STANTEC conducted indoor air sampling over an eight hour period in June 2009. The sampling was conducted to evaluate the potential for PCBs in indoor air beneath the former Connecticut Handivan Garage/Petra Construction Garage in the 98 Rebesch Drive building. During the sampling period, exterior doors remained closed. The sampling was conducted using NIOSH Method 5503 and analyzed by a ACGIH/NVLAP certified laboratory. PCBs were below analytical detection limits in all samples. To verify these results and achieve lower detection limits, STANTEC conducted additional sampling for PCBs in April 2010 using high volume samplers and EPA Method TO-4A. These samples were collected with high-volume polyurethane foam (PUF) filter canisters in accordance with the Methodology suggested by EPA to detect ultra low levels of PCBs in air. As a result, we were able to achieve detection limits of

0.3 to 0.4 nanograms per cubic meter of air (ng/m<sup>3</sup>). A control sample of outdoor ambient air was also collected, since PCBs exist in ambient air. The resulting air sampling data indicate that PCBs exist in both indoor air and outdoor ambient air at 1 to 2 ng/m<sup>3</sup>. Since ambient air and indoor air contain PCBs at similar levels, the difference is not likely to be statistically significant. The PCB concentrations detected in both indoor and ambient air are an order of magnitude lower than the EPA published prudent public health levels of PCBs in school indoor air for adults age 19 and older of 450 ng/m<sup>3</sup>. Consequently, PCBs in indoor air are not posing an unacceptable risk to building occupants.

## **2.4 Groundwater Sampling Data**

STANTEC collected three groundwater samples from existing wells near the PCB and ETPH release areas in April 2010. The sampling was conducted using low flow sampling procedures, following DEP guidance documents. The wells sampled were selected to represent groundwater near the highest PCB and ETPH concentrations measured at the site. These include RIZ-17, RIZ-6, and RIZ-15A. Samples were analyzed using Reasonable Confidence Protocols (RCPs).

The samples were collected to measure current aromatic VOC concentrations, and determine if PCBs had been released to groundwater. The data indicate that VOC concentrations have declined over time. Currently, aromatic VOCs such as benzene, toluene, xylenes, isopropyltoluene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene exist only at RIZ-15A at concentrations that are below the Surface Water Protection Criteria (SWPC) and residential and industrial/commercial volatilization criteria (res-VC and IC-VC). VOCs were not detected in other wells located near three PCB/ETPH release areas in three groundwater samples submitted for analysis in April 2010.

STANTEC developed a Conceptual Site Model (CSM) for the site. The CSM is presented below.

## **2.5 Conceptual Site Model**

Based on the delineation data, STANTEC revised the conceptual site model (CSM) for the site. Historical property uses included brick manufacturing and clay mining (for brick stock). Historical mining created a large pond on-site. In the 1950s, 1960s, and 1970s the pond was filled. The site was redeveloped in the 1980s as a light commercial and industrial complex. Soil and groundwater sampling has been conducted from the mid-1990s to the present. Based on these investigations, it does not appear that on-site operations since redevelopment have resulted in releases of petroleum or hazardous materials.

ETPH, PCBs, and SVOCs have been detected in saturated and unsaturated soil. The source of PCBs and ETPH appears to be historical fill materials, since most soil on-site contains significant quantities of wood, ash, brick, and other debris. Elevated SVOC concentrations could be attributable to the disposal of wood ash. Wood was used to fire bricks from the late 1800s to 1950s. However, since field observations suggest that the SVOCs are part of a heavy petroleum product mixed with wood debris, the SVOCs are more likely related to wood preservative waste deposited as fill from an off-site source. No historical wood preserving was conducted on-site. While some SVOC data exists for soil, we determined that ETPH was the appropriate analytical

metric rather than SVOCs, since SVOCs appear to be coincident with PCBs and ETPH. Thus, SVOCs detected in the soil samples are addressed as a component of the ETPH.

Groundwater sampling data indicate that groundwater is impacted by low levels of VOCs in the southern parking lot, and beneath the Petco Construction garage. For example, benzene exceeds the SWPC at RIZ-15A. Since RIZ-15A is near an on-site pond and the Quinnipiac River, groundwater remediation may be required to reduce benzene and other organics above the SWPC in groundwater. Similarly, groundwater remediation may be required to address exceedances of the volatilization criteria.

Chlorinated VOCs have been periodically detected at low concentrations in groundwater at the south-side of the site. The VOC concentrations have been of a low order of magnitude, and typically 1 to 2 µg/L. The low levels of chlorinated VOCs have been attributed to migration to the site in shallow groundwater as a function of the operation of an air-sparging and SVE system at the adjacent Aura/Arber/Eton Fujikura site. Based on an historical analysis of the data, we note that most chlorinated VOCs detected at the site have coincided with operation of the air sparging system. As a result, we believe that chlorinated VOCs in groundwater at the southern side of the site are from an off-site source.

Based on the nature of surficial deposits, we anticipate that off-site migration of PCBs and ETPH is not occurring. Similarly, since the site is located in a GB area, we do not anticipate that groundwater is used as a drinking water source. No endangered species are known to exist on-site. As a result, no sensitive receptors were identified.

## **2.6 PCB Electrical Equipment**

Based on the date of construction (1985), the presence of PCB electrical equipment containing PCBs >50 ppm is not likely. No historical information exists to indicate the presence of historical electrical equipment containing PCBs >50 ppm at the site.

## **2.7 Drainage Structures**

Drainage structures exist in the building and include floor drains that drain to the storm sewer system. Similarly, catch basins exist at the site and drain to the storm sewer system. Since the fill materials were placed below the ground surface before the buildings were built, the presence of PCBs in the building slab, building materials, and pavement is not anticipated. No evidence has been found to indicate that site operations have resulted in a release of PCBs and ETPH to surface water.

## **2.8 Geology**

Soil beneath the site consist of sandy fill materials containing organic materials, brick and wood scraps, and other debris to a depth of approximately 12-15 fbg. The fill materials are variable in thickness and overlie sand and silty clay deposits that trend to silty clay at 15 to 20 fbg. The release is located in the sand and silty clay deposits rather than the clay. The clay is likely to form an effective barrier to vertical contaminant migration.



No bedrock outcrops were observed in the vicinity. Based on the local geology and work completed by STANTEC on nearby properties, no bedrock is suspected near the surface.

## **2.9 Groundwater Resources**

Groundwater beneath the site is classified as GB by the DEP. GB groundwater is defined as groundwater within a highly urbanized area or areas of intense industrial activities where public water supply service is available. In GB areas, the groundwater may not be suitable for direct human consumption due to various historical impacts in the general area. The DEP's goal is to prevent further degradation to the groundwater through the prevention of additional discharges.

No known drinking water wells exist in the vicinity.

Groundwater flows to the south to southwest and toward the Quinnipiac River.

Based on historical groundwater data, the seasonal high groundwater elevation is approximately 6 fbg in southern portions of the site (Zone 1) and 8 fbg in northern portions of the site (Zones 2 and 3). The seasonal high groundwater determination was made using groundwater elevation data obtained by Rizzo Associates from 1995-2005, SECOR in 2007, and STANTEC in 2008. The seasonal high groundwater estimation is designed to be conservative. Shallower groundwater elevations have historically been measured, but the 6-8 foot estimation is designed to provide a conservative estimation that is protective of human health and the environment.

Most site wells are anchored into the underlying silty clay and clay. We have found no evidence that contaminants exist as a separate phase in any location. On the contrary, sampling data indicate that PCBs are not present in groundwater and that only low levels of VOCs exist in some locations. Hydraulic conductivity at the site is estimated to be typical of silty clay materials and around  $10^{-3}$  ft/sec.

## **2.10 Surface Water**

The nearest surface water body is the Quinnipiac River, which is nearby to the west and across I-91. Stormwater detention ponds exist at and adjacent to the site. These detention ponds are isolated from the Quinnipiac River and the surface water drainage pathway. Releases to the detention ponds, if any, would not result in a release to the Quinnipiac River. The drainage structures contain stormwater contribution from multiple sources, including I-91 and site catch basins.

## **2.11 Wetlands**

The nearest wetland is adjacent to the west. Since the PCB and ETPH impacted soil is buried at depth, a release to the wetland is not anticipated. No staining, sheens, or other evidence of a release to wetlands was identified. Wetlands like areas are adjacent to the on-site drainage

structures. While we have not conducted a wetland survey, there may be minor amounts of wetland soil adjacent to the drainage structures.

### 3.0 SITE INVESTIGATION ACTIVITIES

#### 3.1 PCBs in the Natural Environment

To further delineate PCBs and ETPH in soil beneath the 98 Rebesch Drive building (Zone 3), STANTEC conducted soil borings to 15 fbg in the interior space at the northern-side of the building. A small amount of fill containing PCBs over 1 ppm was encountered. Some of the fill contained PCBs up to approximately 200 ppm at a depth of 12 fbg beneath the 98 Rebesch Drive building.

Based on the data collected during historical investigations, STANTEC calculated volume estimates for the impacted soil zones above the regulatory criteria, above and below the saturated groundwater zone.

Estimated soil volumes exceeding regulatory criteria are summarized below. The estimates are based on an estimated vertical depth of 8 feet.

##### Zone 1

ETPH Impacted Soil = 3,800 yds<sup>3</sup>  
PCB Impacted Soil (1 to 10 mg/kg) = 2,133 yds<sup>3</sup>  
PCB Impacted Soil (10 to 50 mg/kg) = 355 yds<sup>3</sup>

##### Zone 2

ETPH Impacted Soil = 1,422 yds<sup>3</sup>  
PCB Impacted Soil (1 to 10 mg/kg) = 475 yds<sup>3</sup>

##### Zone 3

ETPH Impacted Soil = 1,896 yds<sup>3</sup>  
PCB Impacted Soil (1 to 10 mg/kg) = 680 yds<sup>3</sup>  
PCB Impacted Soil (10 to 50 mg/kg) = 265 yds<sup>3</sup>  
PCB Impacted Soil (over 50 mg/kg) = 235 yds<sup>3</sup>

Zones are depicted on Figure 1A. Contaminants in these zones are graphically depicted on Plans 2 through 7 (attached). Most of the impacted soil is deeper than 4 feet from the ground surface and extends beneath the saturated groundwater zone to a depth of 12-14 fbg in soil locations. Shallow ETPH and PCB impacted soil was detected in a few selected locations. The plan addressed these shallow soils through targeted excavation as well as deeper soils to 12 to 14 fbg.

#### 3.2 PCBs in Concrete

Since the PCB and ETPH impacted soil is buried at depth and has been beneath a paved

asphalt surface since site development (1988), the presence of PCBs in concrete is not suspected. No pathway exists for PCBs to migrate or track to concrete in the buildings. As a result, concrete sampling has not been conducted nor is warranted based on the site development history.

## **4.0 SOIL CHARACTERIZATION DATA QUALITY REVIEW**

### **4.1 Soil Sampling Work Plan**

Delineation soil sampling conducted from 2008 to 2010 conducted in accordance with the general methodology discussed with EPA Region 1 during telephone conversations in 2009 (10 foot centers in areas where PCBs were detected above 50 ppm) and 20 foot centers in other locations where lower PCB concentrations were detected. A Quality Assurance Project Plan (QAPP) was prepared for the sampling activities and is appended. The data quality review was designed to evaluate the data with respect to the QAPP and industry standard data quality guidelines.

### **4.2 Data Needs**

Data requirements outlined in the work plan included the following data needs:

1. Determine the horizontal and vertical distribution of PCBs and ETPH in soil at the site.
2. Determine the volumes of soil above and below the water table that contain PCBs and ETPH above regulatory criteria.
3. Determine whether PCBs pose a threat to human health and the environment in-situ.

### **4.3 Data Quality Objectives**

Soil sampling data quality objectives (DQOs) outlined in the work plan included:

1. Analytical methods must be in compliance with the requirements of SW846.
2. The analytical method must be able to distinguish distinct PCB compounds including PCB Aroclor 1016, Aroclor 1254, Aroclor 1260, and Aroclor 1268. EPA Method 8082a is the most suitable analytical technique to achieve this DQO.
3. The analytical method must employ extraction method 3540C, as specified by the Federal regulations and as requested by EPA.
4. Analytical detection limits must be below 1 ppm for total PCBs. As a result, analytical detection limits for individual Aroclor compounds should be around 50 µg/kg at the highest.
5. Analytical data quality must be sufficient to allow the user to distinguish interference from actual PCB concentrations.

6. Analytical data quality must be sufficient to allow the user to review and verify laboratory quality control and verify the precision, accuracy, and completeness of the data set.
7. The data set must meet the DEP's Reasonable Confidence Protocols (RCPs) for data quality.

The sampling completed from 2008 to 2010 meets these DQOs since each objective was satisfied. Stantec's review of the data package indicates that the analytical methods specified in the work plan were met, the QC data were sufficient to distinguish interference from representative data, and the lab data meet both the quality requirements contained in SW846 and the CT DEP's RCPs.

#### **4.4 Soil Sampling Data Quality Parameters**

The sampling work plan required an evaluation of data quality parameters including precision, accuracy, representativeness, completeness, and comparability.

- Stantec reviewed the data quality package provided by the lab and determined that the data meet the quality thresholds for precision. Lab precision was measured using duplicates. The PCB concentrations reported in the duplicates were within 20 percent of the source sample result. As a result, the data meet the precision requirements set by the work plan for precision.
- Stantec reviewed the data package for accuracy as measured by lab QC data (blanks, MS/MSDs, and performance evaluation samples). The method blanks, MS/MSD, lab duplicates, and PE sample results meet the accuracy requirements set forth in the work plan. The PE sample contained PCBs within the expected spike range reported by the manufacturer.
- The sample collection followed a 20 x 20 ft. grid in the areas where PCBs and ETPH have been detected and a 10 x 10 ft. grid in Zone 3 where PCBs have been detected at elevated concentrations without significant variation. As a result, the data meet the representativeness requirements stipulated by the QAPP.
- Based on our review of data collection methods, sample handling, and lab sample management techniques, the data package was determined to be comparable to other data packages used for environmental remediation projects. Since the data meet the RCPs, the data meet the requirements for comparable data packages in Connecticut and the quality requirements set forth by the DEP for use under the RSRs. The lab followed the practices and procedures for the completion of EPA Method 8082A and extraction method 3540C. As a result, the data are comparable to other data packages used for the investigation and remediation of PCBs under TSCA.
- The data collection grid was deemed complete since more than 80 percent of the intended samples were collected. The 80 percent threshold was a project completion goal.

#### **4.5 Air Sampling Data Quality Parameters**

Air sampling was conducted using a laboratory accustomed to meeting EPA's requirements for air sample analytical quality (NEA Analytical, Inc. in Albany, New York). This laboratory does not provide RCP certifications. However, the data obtained from NEA was obtained using specialized state of the art analytical procedures by one of the few laboratories capable of conducting the required analyses. As a result, we believe that these data are of superior quality that exceed RCP data quality standards.



## **5.0 PROPOSED REMEDIAL RESPONSE**

### **5.1 Remedial Approach Overview**

The remedial response for PCBs >10 ppm beneath the 98 Rebesch Drive building, which are considered high occupancy, was designed to meet the requirements of 40 CFR Part 761.61(c) (TSCA risk-based approval for PCB remediation), CGS 22a-133k-1-3 (the RSRs), and the Connecticut Solid Waste regulations. The RAP includes excavation and in-situ management components. For exterior soils, remediation of PCBs >10 ppm will follow the prescriptive requirements of 40 CFR 761(a).

The ECL, as discussed in previous sections, will serve to manage ETPH exceeding the IC (2,500 mg/kg) in place under the existing pavement. The ECL will also serve to cover PCBs to prevent contact, and provide a cover over two feet of clean soil over PCBs and ETPH that remain. Note that only limited areas of ETPH and/or PCBs exist within two feet of the surface, and the bulk of impacted soil exceeds 4 feet in depth. The reason for this contaminant distribution is that fill materials were used to fill brickyard ponds. As such, the fill materials exist mainly below saturated groundwater. More recent filling activity was conducted in the 1980s by Paul Rebesch to develop the site, and included clean materials.

### **5.2 Soil Removal PCBs>10 ppm and ETPH Over 2,500 mg/kg**

PCB impacted soil containing PCBs over 10 ppm adjacent to the 78 Rebesch Drive building (Zone 1) and 98 Rebesch Drive building (Zone 3) will be excavated to 12-14 fbg in accessible locations in each area. In lawn and sidewalk areas at 78 Rebesch Drive, soil excavation will occur until contaminants are below RSR criteria since the proposed ECL is not appropriate for these areas. The remediation wastes will be disposed off-site as TSCA remediation wastes at Subtitle C and D landfills, as appropriate (based on PCB concentration). Certain low level PCB impacted soils may also be eligible for re-use at municipal landfills (e.g. the Hartford Landfill)(depending on PCB concentration) for purposes of landfill closure. Should we find that the Hartford Landfill can accept these soils, EPA and DEP will be notified of this change in disposal location.

### **5.3 ECL PCBs>1 ppm , PCBs>10 ppm and ETPH Over 2,500 mg/kg (Inaccessible Areas Beneath Buildings)**

The proposed remedial approach for soil containing PCBs over 10 ppm is to manage the soils beneath the 98 Rebesch Drive building under the existing structure. As discussed, STANTEC conducted indoor air monitoring to determine if this strategy would provide a disposal solution that would be protective of human health. Since PCBs over 10 ppm are buried at depth and no PCBs were detected in indoor air, this approach would result in negligible risk to human health because:

1. The wastes would be inaccessible to workers in the building.

2. The wastes would not be subject to stormwater infiltration.
3. The in-situ disposal would not result in risk to indoor air and building occupants.

The 98 Rebesch Drive building is a concrete and steel roof structure that is in good condition. The slab of the structure is a 6-inch reinforced concrete slab without a vapor barrier. The structure and slab are in excellent physical condition. As a result, the existing structure and slab meet the criteria specified by 40 CFR 761.61(a)(7) because the slab is not subject to exposure to precipitation. The slab also meets the minimum thickness of 6 inches. Maintenance of the slab is discussed in the ELUR section (Section 5.7).

#### **5.4 ECL for PCBs >1 ppm and <10 ppm and ETPH over 2,500 mg/kg**

The proposed remedial approach for soil containing PCBs >1 and <10 ppm beneath asphalt in exterior locations of Zones 1, 2, and 3 and the 78 Rebesch Drive building is to leave these soils in place. Soils in these areas range in depth from 4 feet to 12 feet below grade on average. Since the paved parking lots are used for vehicle traffic, loading, and transient access to the buildings, these soils can be classified as "low-occupancy" and could remain in place under the SIP provided by TSCA. PCBs >1 ppm and <10 ppm PCBs are comingled with petroleum hydrocarbons above 2,500 mg/kg. As a result, STANTEC proposes to leave these soils in place under the ECL to meet the RSR requirements.

The ECL would render PCB and ETPH impacted soil inaccessible and environmentally isolated. As a result, STANTEC believes that this approach would be protective of human health and the environment because:

1. The soils would be inaccessible to workers and transient occupants of the property.
2. The soils would not be subject to unacceptable stormwater infiltration by virtue of the existing pavement. Note that only low levels of aromatic VOCs have leached to groundwater in two areas (the southern parking lot) and near the Petra garage space). VOCs are below the SWPC for each respective compound. As a result, the data demonstrate that the ETPH release does not pose an unacceptable risk to human health or the environment
3. The soils would not be subject to erosion.
4. The in-situ disposal would provide long term protection of the impacted soils.

#### **5.5 ETPH Cleanup Levels**

Groundwater sampling indicates that the ETPH impacted soil is not resulting in a significant impact to groundwater. In addition, groundwater sampling suggests that only a limited release of VOCs to groundwater has occurred. VOCs only exceed the volatilization criteria (VC) and Surface Water Protection Criteria (SWPC) in the vicinity of RIZ-15A. While benzene exceeds

the VC in the vicinity of RIZ-15A, this well is down-gradient of buildings at the site. No VOCs above the VC have been detected in groundwater near or up-gradient of occupied buildings.

The data indicate that ETPH is not significantly impacting groundwater. As such, rendering ETPH impacted soil above 2,500 mg/kg inaccessible and environmentally isolated would be protective of human health and the environment.

STANTEC proposes to render ETPH impacted soil, which are comingled with PCBs, in place as inaccessible and environmentally isolated under the ECL. While no prescribed cap is required for PCBs under 40 CFR 761(a), we understand that some clean cover is likely required under a 40 CFR 761(c) approval. In this instance, the ECL will have a 2 foot clean cover over contaminated soil and include 2 to 3 inches of asphalt over the clean soil cover.

## **5.6 Proposed Engineered Control Lite**

STANTEC proposes to use an Engineered Control Lite (ECL) to manage ETPH and PCBs in soil after PCB remediation. The ECL will use the existing buildings to cover PCB and ETPH impacted soil beneath these structures, and the existing pavement to cover PCB and ETPH impacted soil that may remain. Backfilled and paved remediation areas will also serve as part of the ECL cover. Based on the data available, the ECL will provide an effective barrier to control direct exposure and migration of contaminants to groundwater. Since the contaminants are largely buried at depth and the impacted areas are primarily used for truck traffic and vehicle parking, 2 feet of clean fill covered by 2 to 3 inches of asphalt (the existing pavement) is proposed to serve as the ECL.

Recent groundwater sampling data suggest that ETPH and PCBs are not adversely impacting groundwater. While ETPH exceeds the GB PMC by total/mass analysis, groundwater data validate that VOC impacts to groundwater are minimal and do not exceed the SWPC or volatilization criteria (VC). As such, the groundwater data demonstrate that the release is not adversely impacting groundwater. Therefore, the ECL will also be used to deem the soil environmentally isolated, using groundwater data to support the validity of the ECL in achieving this purpose.

The ECL differs from the self implementing options for achieving compliance with the DEC and PMC prescribed by the RSRs in two fundamental ways:

1. The ECL will use less than 3-inches of asphalt cover over 2 feet of clean material to render the soil inaccessible. Asphalt ranges from 2 to 3 inches across much of the site. Since the release areas are used for truck traffic and vehicle parking, this departure from the normal protocol of 3 inches of asphalt is not deemed a factor that would create a significant risk to human health or the environment.
2. The ECL does not rely on contaminant soil concentrations to render soils environmentally isolated vis a vis the GB PMC. Note that the release area intersects saturated groundwater. As a result, we cannot demonstrate that the soils are environmentally isolated in a traditional sense. However, groundwater data demonstrate that releases of VOCs are below the VC and SWPC.

3. Therefore, the ECL relies on the groundwater data and contaminant concentration to demonstrate compliance with the GB PMC. Since the ultimate goal of the PMC is to prevent unacceptable impacts to groundwater, we believe that the use of the ECL is consistent with the spirit and intent of the PMC.

We anticipate that the customary 45-day public comment period would apply.

## **5.7 Environmental Land Use Restriction**

After soil containing PCBs over 10 ppm is excavated from exterior locations and left in place under the 98 Rebesch Drive building, an ELUR will be recorded on the land records to ensure that the material remains inaccessible, undisturbed and environmentally isolated under the ECL.

The ELUR will stipulate that the site be used only for industrial and commercial purposes and that the 78 and 98 Rebesch Drive buildings remain in place and undisturbed.

Emergency access is possible without releasing the ELUR. The ELUR will contain provisions to allow access beneath the slab, in an emergency situation, following specific procedures to minimize potential worker exposures to PCBs. The ELUR will be used to satisfy the requirements of the deed restriction that must be placed on the land records under 40 CFR 761.61(a) and the RSRs to ensure that there is notification on the land records that the property has been used for PCB remediation waste disposal and that the ELUR restrictions must be maintained. Under 40 CFR 761.61(a)(8), the deed restriction is to be recorded within 60 days of completion of a cleanup activity under that section.

WEI North Haven Limited Partnership plans to prepare and record the ELUR at the completion of all cleanup activities at the site, so that it can clearly show the areas where use is being restricted including those areas used for PCB remediation waste disposal designated as "high occupancy", and those that are and those areas designated as "low occupancy."

The ELUR will also contain provisions that require annual inspection and maintenance of the ECL (pavement) to prevent asphalt degradation, settling, cracking, and deterioration. Should the ECL deteriorate, then re-paving will be required to meet the same conditions that exist when the ECL was approved. These restrictions will be carried on the deed to satisfy both 40 CFR 761.61(a)(8) and the RSRs.

## **5.8 Preferential Pathways**

No preferential pathways for contaminant migration were identified with respect to PCBs in the soils located in Zones 1, 2, and 3. A natural gas, water, and electrical utility trench runs through Zone 1 above the saturated groundwater zone. As a protective measure, the trench will be backfilled in locations where excavation removes materials with high swelling bentonite clay stops every 50 feet along its axis as it runs through the release area. The use of clay stops

would prevent potential contaminant migration in the unlikely event of a flood from an extreme storm water event. No other preferential pathways to contaminant migration were identified.

## **5.9 Construction and Emergency Access Considerations**

Under the ELUR, emergency access to the restricted areas will be allowed as necessary. Access to areas covered by the ELUR is available in emergency situations. Access for construction, utility work, and other non-emergencies is also possible with release from DEP to access the materials or conduct work in and around the restricted areas.

## **5.10 Contaminant Mobilization Variables**

### *Mixed Contaminants*

No compounds that would mobilize PCBs are mixed with the PCB impacted soils. PCBs are comingled with petroleum hydrocarbons, poly aromatic hydrocarbons (PAHs), and low levels of aromatic VOCs such as benzene and toluene. These compounds do not mobilize PCBs to any significant degree. Existing site data also demonstrate that VOCs in groundwater at RIZ-15A are not causing a release of PCBs to groundwater.

### *Vaporization*

PCBs are extremely insoluble and have an exceptionally low vapor pressure. As a result, PCBs are naturally resistant to volatilization under normal temperatures. However, a 2004 anecdotal study measured very low levels of PCBs in indoor air at a site where PCBs exist at very high concentrations beneath buildings. In one instance, PCBs were measured in indoor air where PCBs exist at a concentration of 160,000 ppm in soil. At that particular location, the indoor air testing found trace levels of PCBs in indoor air as a result of vaporization from the subsurface (1-200 ng/m<sup>3</sup>). These concentrations are well below the OSHA Permissible Exposure Limit (PEL).

To evaluate this variable with respect to the presence of PCBs beneath the 98 Rebesch Drive building, Stantec determined that PCB concentrations in soil beneath 98 Rebesch Drive are orders of magnitude less than those associated with the 2004 EPA study. As a result, PCBs, if present as vapors, would likely be below analytical detection limits for an unprotected slab and foundation (<100 ng/m<sup>3</sup>). As a result, STANTEC determined that the risk of vapor intrusion from leaving PCB wastes beneath 98 Rebesch Drive is negligible.

As discussed, to support this assessment, STANTEC collected three indoor air samples in the 98 Rebesch Drive space using NIOSH Method 5503 for PCB analysis. PCBs were below detection limits in the samples collected (<100 ng/m<sup>3</sup>). Additional air sampling was conducted in April 2010, and determined that PCBs in indoor air ranged from 0.000276 to 0.002881 µg/m<sup>3</sup> and slightly higher than PCB concentrations measured in outdoor ambient air (0.000706 to 0.001633 µg/m<sup>3</sup>).

### **5.11 Stormwater Management and Mitigation**

Stockpiled soil will be loaded directly in covered and secured containers in accordance with stockpiling requirements outlined in this document. The containers will be scheduled for off-site disposal as soon as practicable. As a result, the risk of stormwater coming into contact with the excavated soil is minimized.

### **5.12 Stockpile Requirements**

PCB-impacted soil generated during the project will be stored in designated stockpile areas in roll off containers. The containers will meet the stockpile requirements contained in 40 CFR Part 761 and labeled with the "ML" mark.

### **5.13 Verification Sampling**

After soil removal in exterior areas where PCBs exceed 10 ppm, verification sampling will be conducted in accordance with 40 CFR Part 761, Subpart O. This protocol will be used to sample sidewalls and the bottom of excavations. Samples will be analyzed for PCBs by EPA Method 8082a using the Soxhlet extraction procedure 3540C. Samples will also be analyzed for ETPH. The analytical detection limits will be sufficient to satisfy the CT RSRs and EPA remediation cleanup goals. All data will be performed by a State of Connecticut Department of Health (CT DPH) certified laboratory using the RCPs.

## **6.0 PERMITS AND APPROVALS**

### **6.1 Overview**

The soil remediation project is not subject to state or federal permitting requirements. However, the remediation project and disposal of PCB remediation waste is subject to DEP and EPA approval.

### **6.2 General Permit for Contaminated Soil Staging and Transfer**

We do not anticipate the soil remediation project will be expected to result in the storage of more than 1,000 cubic yards of soil at any given time for more than 45-days. As a result, this permit will not be required.

### **6.3 Remediation Wastewater**

In order to facilitate excavation below the saturated groundwater zone in areas where PCBs exceed 10 ppm, dewatering will be required. Dewatering will be performed to remove dewatering wastes. STANTEC proposes to containerize the wastewater in a frac tank prior to treatment and discharge under a permit to the sanitary sewer. The proposed treatment is sediment removal in the frac tank, oil removal in an in-line oil/water separator, and filtration through activated carbon before discharge. Some excavation activities will require the use of sheet piling and/or trench boxes. STANTEC will determine what excavation technologies are most appropriate.

### **6.4 General Permit for the Discharge of Remediation Wastewater to the Sanitary Sewer**

The discharge of treated remediation wastewater to the sanitary sewer will be performed using a DEP General Permit for the Discharge of Remediation Wastewater to the Sanitary Sewer. STANTEC will apply for this permit.

If the municipal sanitary sewer cannot accept the wastewater, STANTEC will dispose of the wastewater at a facility that is licensed to accept the wastewater.

### **6.5 EPA Remedial Action Plan Review**

Under 40 CFR Part 761.61(c), approval of the RAP for high occupancy areas will be required by EPA. 40 CFR 761.61(c) which does not stipulate EPA review and approval within a prescribed timeframe. As such, the work plan will not be implemented until approval is received from EPA.

### **6.6 DEP Remedial Action Plan Review**

DEP review and approval of the ECL is done on a case by case basis. STANTEC will present the ECL to DEP conceptually in this plan. Upon review, STANTEC will arrange for a meeting to



formalize conceptual approval of this plan. Once conceptual approval is received, STANTEC will file an application for the ECL.

## **6.7 Certification**

40 CFR Part 761.61(a)(3)(E) requires a written certification by the owner of the site where cleanup will occur and the party conducting the cleanup that all sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup site, are on file at the location designated in the certificate and are available for EPA inspection. The certification is attached as Appendix C.

## **6.8 Engineered Control Lite Variance**

The only financially viable way to achieve compliance at the site is through the use of the ECL variance process to leave ETPH impacted fill materials in-situ. Since these materials are not causing a significant impact to groundwater, an ECL would be an appropriate application for this site. The cost to remediate ETPH would be prohibitive, and not likely to result in a material improvement in environmental quality. Since PCBs and ETPH are not significantly impacting groundwater resources, and VOCs are only present in one location (RIZ-15A) below the SWPC and IC VC, the cost to excavate the PCBs and ETPH is not justifiable.

## **7.0 SCOPE OF WORK LOGISTICS**

The remedial response scope of work is detailed below. The scope of work includes procedures and protocols for soil excavation and staging, and off-site disposal.

### **7.1 Task Scheduling**

Project tasks have been coordinated so that soil excavation for PCBs, ETPH, and groundwater treatment will occur in a coincident manner. Such an approach will minimize costs and time to complete the work.

### **7.2 Soil Excavation**

Uncontaminated soil in the unsaturated overburden, as delineated by STANTEC in 2008, will be removed from those areas where soil excavation will occur, and stockpiled pending reuse as backfill. Based on the volumes of soil calculated in each zone, STANTEC anticipates removing PCBs in accessible areas of each zone. Accessible areas are defined as soils at 78-98 Rebesch Drive that are not beneath buildings, footings, and other infrastructure that can be easily excavated without risking structural damage to buildings, footings, or other infrastructure owned by the property owner and tenants, as applicable.

STANTEC anticipates that soil excavation activities in each zone will be successful in removing PCB remediation wastes >10 ppm in all accessible areas of each zone. In each zone, the contaminated soil zone ranges from approximately 4 to 12 to 14 fbg.

### **7.3 Waste Shipment Notification**

In accordance with 40 CFR Part 761, WEI North Haven Limited Partnership will provide each off-site disposal facility written notice of waste shipments, including the quantity to be shipped and highest concentration of PCBs detected (using extraction EPA Method 3500B/3540C followed by chemical analysis using EPA Method 8082 in SW-846) at least 15 days before the first shipment of bulk PCB remediation waste from the site.

### **7.4 General Remediation Waste Disposal**

Non-liquid cleaning materials and personal protective equipment waste at any concentration, including non-porous surfaces and other non-liquid materials such as rags, gloves, booties, other disposable personal protective equipment, and similar materials resulting from cleanup activities shall be either decontaminated in accordance with §761.79(b) or (c), or disposed of in one of the following facilities:

(1) A facility permitted, licensed, or registered by a State to manage municipal solid waste.

(2) A facility permitted, licensed, or registered by a State to manage non-municipal non-hazardous waste.

(3) A hazardous waste landfill permitted by EPA under section 3004 of RCRA, or by a State authorized under section 3006 of RCRA.

(4) A PCB disposal facility approved under 40 CFR Part 761.

## **7.5 Waste Transportation**

All PCB remediation wastes shipped off-site for disposal will be shipped in transportation containers that meet the requirements of DOT Hazardous Materials Regulations (HMR) at 49 CFR parts 171 through 180.

## **8.0 AMBIENT AND WORKER AIR MONITORING AND WORKER SAFETY**

### **8.1 Air Monitoring Strategy**

During the impacted slab demolition and stockpiling activities, Stantec has developed an air monitoring protocol to ensure that exposure to airborne PCBs to on-site workers and the environment is minimized. The monitoring will include two components: 1) a negative exposure assessment (NEA) to ensure that workers are not exposed to PCBs during site specific work activities, and 2) ambient monitoring to ensure that PCBs are not released to nearby properties. The goal of ambient air monitoring is to ensure that the excavation project will not result in emissions of PCB dust to the environment and nearby community.

### **8.2 Negative Exposure Assessment**

For the first two days of operations, two workers best representing those work practices directly related to soil excavation, stockpiling, and waste management will be outfitted with a personal low-volume sampling pump with an attached filter and sorbent tube. The pumps will be calibrated for a flow rate of approximately 0.1 liters per minute (l/min) for a total of 48 liters over an 8-hour period.

The personal air samples will be sent to a certified and accredited laboratory where they will be analyzed by NIOSH method 5503 using gas chromatography. Results will be presented in milligrams per cubic meter and will be compared to an 8-hour time weighted average (TWA) Permissible Exposure Limit (PEL) of 1 mg/m<sup>3</sup> (for 42% Cl compounds) and 0.5 mg/m<sup>3</sup> (for 54% Cl compounds). The laboratory detection limits will be approximately 1.0 µg/m<sup>3</sup>.

Prior to the receipt of results, all workers will perform the work practices using Level C personal protective equipment (PPE) including full face or half mask respirators, gloves, and protective suits. After receipt of the results, the workers may lower the level of PPE to Level D, provided that exposure to airborne PCBs are below the OSHA PEL.

If PCBs exceed the OSHA PEL, then workers will be instructed to increase the use of dust suppression and will maintain Level C PPE until personnel air monitoring indicates that PCBs are below the PEL during the work practice.

### **8.3 Background Ambient Air Monitoring**

Based on our experience with similar projects, STANTEC proposes to use total particulates as a measure for adequate dust control. Since PCBs are only aerosolized as adhered to particulates, total dust measurements should be adequate to protect human health and the environment.

Prior to any excavation activity, STANTEC will monitor dust levels at the site with a DustTrak II total dust monitor and digital weather station that monitors temperature, humidity, and wind direction. The background dust results will be used to establish a baseline for dust levels during excavation.

#### **8.4 Ambient Air Monitoring During Excavation**

During excavation of PCB impacted soil, ambient air samples will be collected from the perimeter of each zone. Real time particulate levels will be recorded and compared to background levels.

During excavation, if dust levels exceed two times the background concentrations recorded before the project for any extended period of time, STANTEC will instruct the contractor to use an engineered control (water mist) to control particulate emissions.

#### **8.5 OSHA HAZWOPER (29 CFR 1910.120)**

Sampling and excavation staff selected for this project must be enrolled in a medical monitoring program that complies with the OSHA HAZWOPER standard. If respiratory protection becomes necessary during sampling as a result of a change in sampling conditions from those that existed during the completion of the NEA, each sampler that must wear a respirator must hold documentation that he or she has passed a qualitative and quantitative respirator fit test.

#### **8.6 Action Levels**

The action level for PCBs in worker breathing zones is the OSHA PEL. The action level for dust (as measured by total particulates) is  $150 \text{ mg/m}^3$  or two times the background particulate concentration, whichever is less.

#### **8.7 Threshold Exceedances**

If dust thresholds are exceeded, then the site work will stop and dust suppression measures will be modified to reduce airborne dust. Dust suppression may include misting and engineering controls to minimize dust generation.

#### **8.8 Wind Measurements**

Prevailing winds will be measured during the air monitoring activities and recorded hourly. The wind direction data will be used in conjunction with the sample data to illustrate the prevailing wind and likely downwind position. The data will be used to demonstrate the efficacy of dust suppression.

## **9.0 SOIL REUSE AND SITE RESTORATION**

### **9.1 Uncontaminated Soil**

Clean fill materials excavated from the unsaturated overburden will be stockpiled and reused at the site as backfill. The uncontaminated soil will be compacted at the static groundwater table with a vibratory compactor. Some of this fill may also be used above the saturated groundwater zone to the 2 feet below grade elevation. Above the static groundwater zone, uncontaminated soil will be compacted in one foot lifts to 95 percent compaction.

### **9.2 Structural Fill**

The balance of fill materials used to backfill excavations will be sand and gravel that meets Connecticut DOT requirements for paving sub base conforming to the requirements of Articles M.02.02 and M.02.06 of the Connecticut DOT specifications for grading materials B. These materials will be used at a minimum thickness in any excavation where paving will be used as the final cover. The material will be compacted at the static groundwater zone (if necessary) and in one foot lifts above the static groundwater zones to 95 percent compaction.

### **9.3 Pavement and Curbing**

In excavation areas, asphalt will be patched with a high quality asphalt cover consisting of three inches of hot rolled asphalt. Similarly, curbing will be replaced as necessary. Both asphalt and curbing will be graded to match existing. Curbing and pavement will meet Connecticut DOT curbing requirements for secondary roads and Town of North Haven zoning requirements.

### **9.4 Pavement Grading Plan**

STANTEC will prepare a pavement grading plan to ensure that the new paved surface meets site specific drainage requirements, matches existing grade, and matches the elevation of existing structures such as buildings, catch basins, and other site features. The grading plan will take into account the depth of existing pavement, the existing sub-base elevation, and the elevation of existing site features. The grading plan will be stamped by a State of Connecticut Licensed Professional Engineer (PE). The grading plan will be provided to the pavement contractor to complete the work.

### **9.5 Pavement Recycling**

Existing pavement will be reprocessed and set aside for recycling as sub base beneath the new asphalt surface. The recycling will be completed by the pavement contractor using good commercial practice

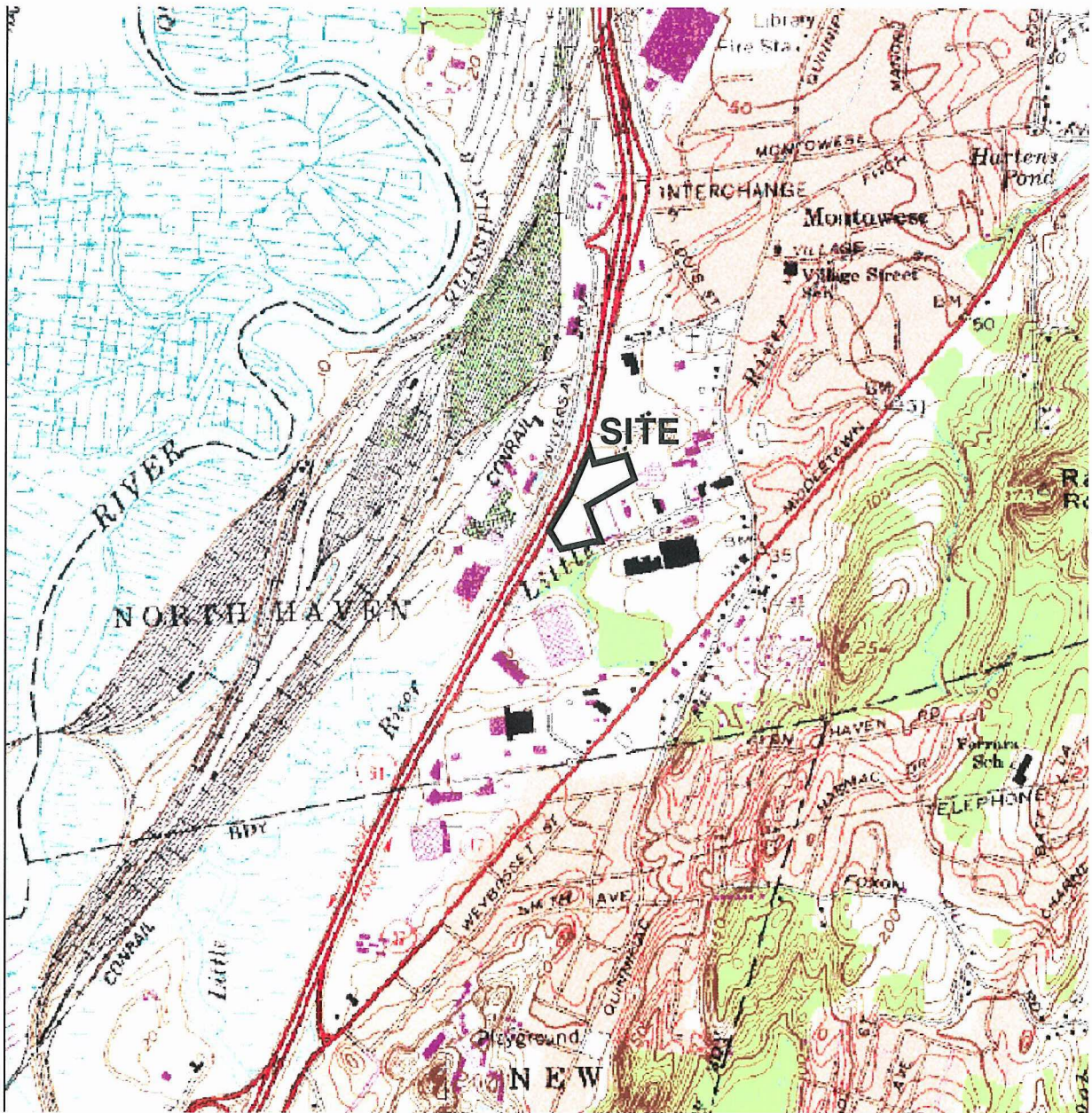
## **10.0 PROPOSED GROUNDWATER MONITORING PROTOCOL**

### **10.1 Baseline Monitoring**

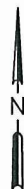
Compliance and post-compliance groundwater monitoring will be conducted in accordance with the requirements of the RSRs. We anticipate that the monitoring protocol will involve all existing site wells. Groundwater from each well will be analyzed for PCBs by EPA Method 8081 and VOCs by EPA Method 8260 using the RCPs. Sampling will be conducted in accordance with prevailing DEP guidance.



## FIGURES



QUADRANGLE LOCATION



REFERENCE: USGS 7.5 MINUTE QUADRANGLE; BRANFORD, CT.; 1984



**SECOR**

100 PEARL STREET, 14th FLOOR  
HARTFORD, CONNECTICUT  
PHONE: (860) 249-7034/249-7037 (FAX)

FOR:

78-98 REBSECHI DRIVE  
NORTH HAVEN, CONNECTICUT

JOB NUMBER:

DRAWN BY:

KEF

CHECKED BY:

JL

APPROVED BY:

FIGURE:

**1**

DATE:

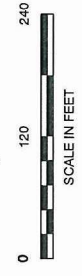
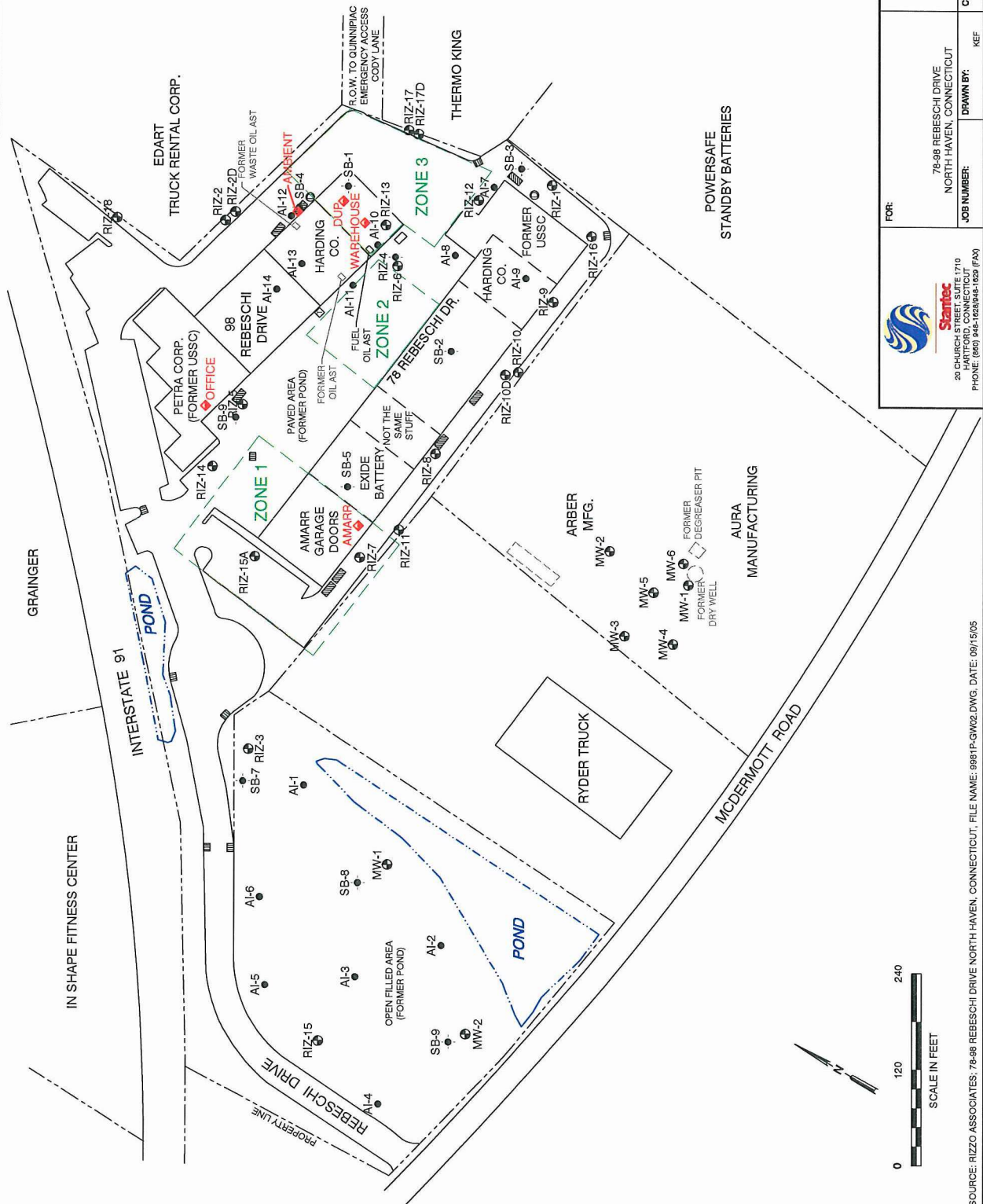
04/20/2004


# **SITE LOCATION MAP**





- LEGEND
- MONITORING WELL
  - SOIL BORING
  - SOIL BORING
  - AIR SAMPLE LOCATION
  - ABOVE GROUND STORAGE TANK
  - UNDERGROUND STORAGE TANK
  - CATCH BASIN
  - TRANSFORMER
  - 55 GALLON DRUM
  - DUMPSTER
  - AST
  - UST



 <p>20 CHURCH STREET, SUITE 1710 HARTFORD, CONNECTICUT PHONE: (860) 848-1628 FAX: (860) 848-1629</p>	<p>FOR: 78-98 REBESCHI DRIVE NORTH HAVEN, CONNECTICUT</p> <p>JOB NUMBER: KEF</p> <p>DRAWN BY: KEF</p> <p>CHECKED BY: AK</p> <p>APPROVED BY:</p>	<p>FIGURE: 1A</p> <p>DATE: 07/29/2010</p>
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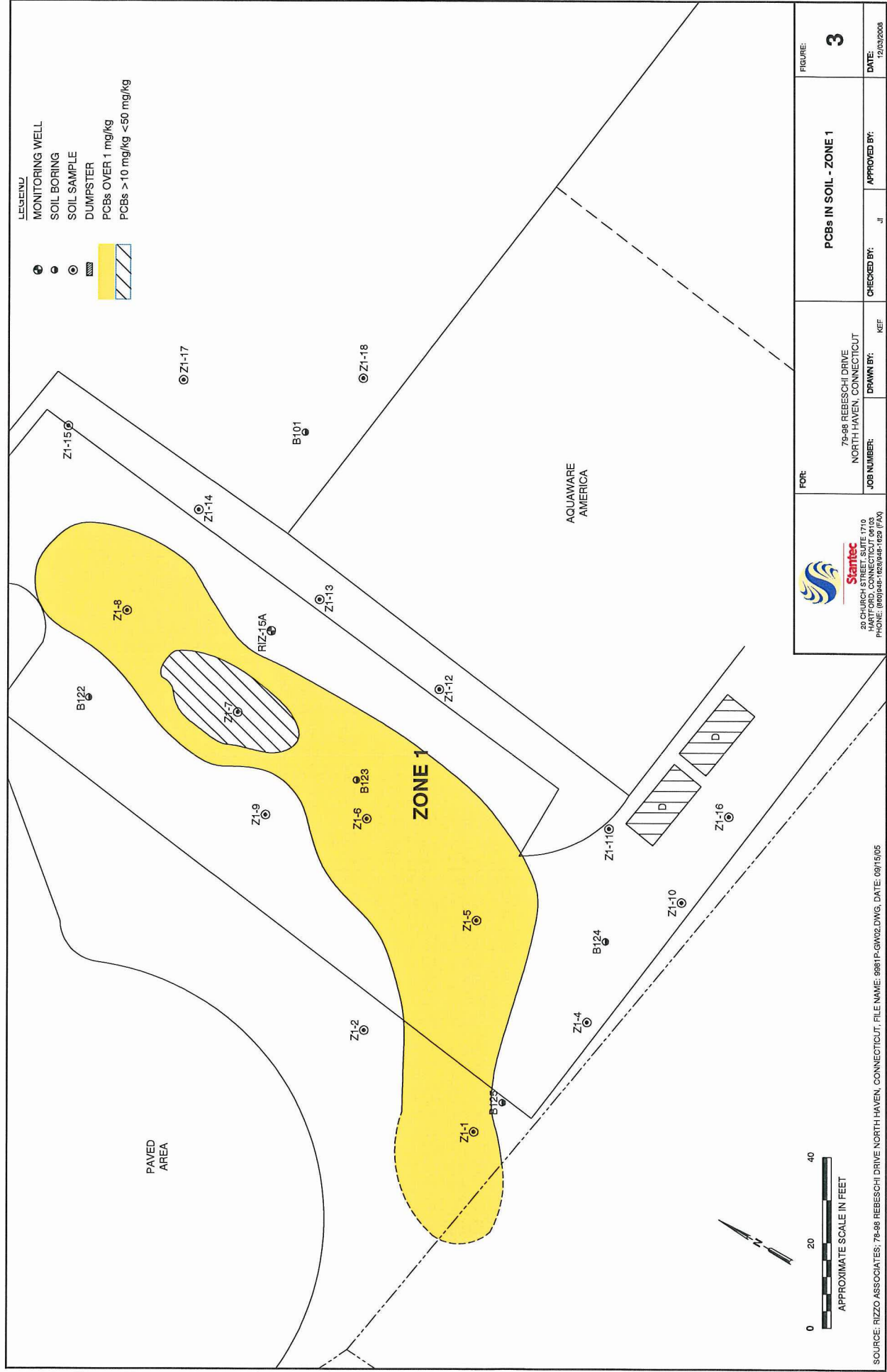
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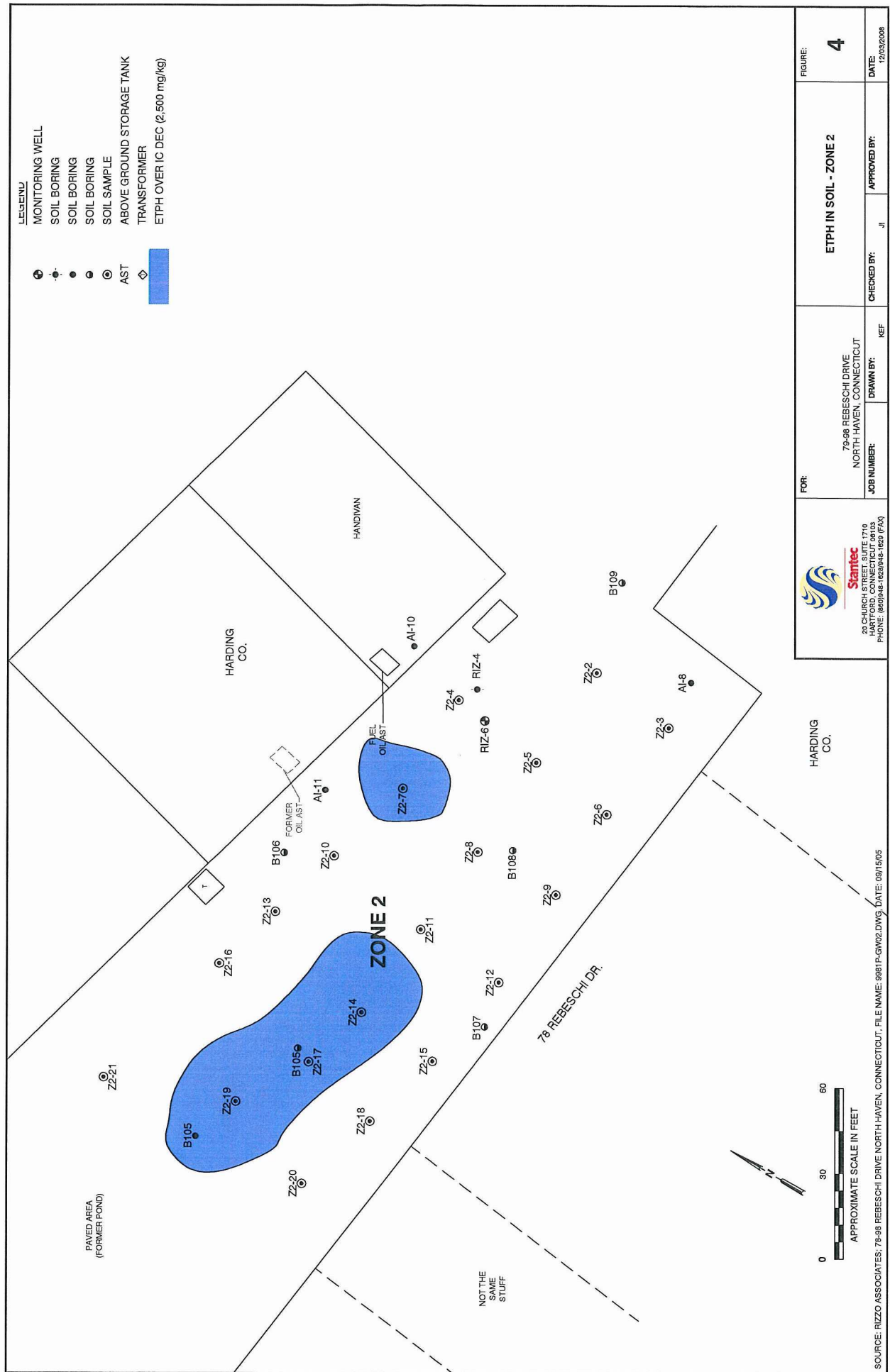
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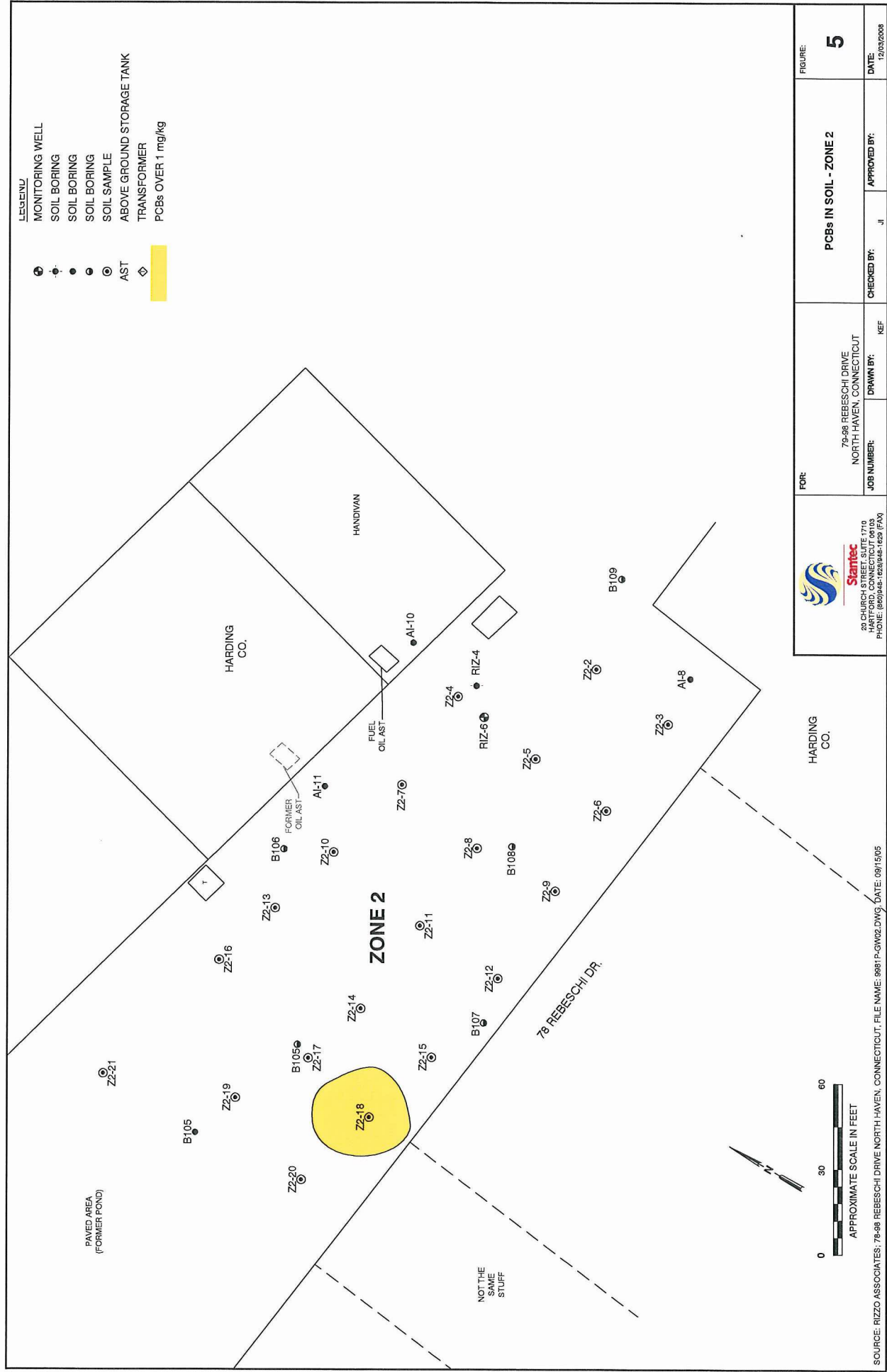
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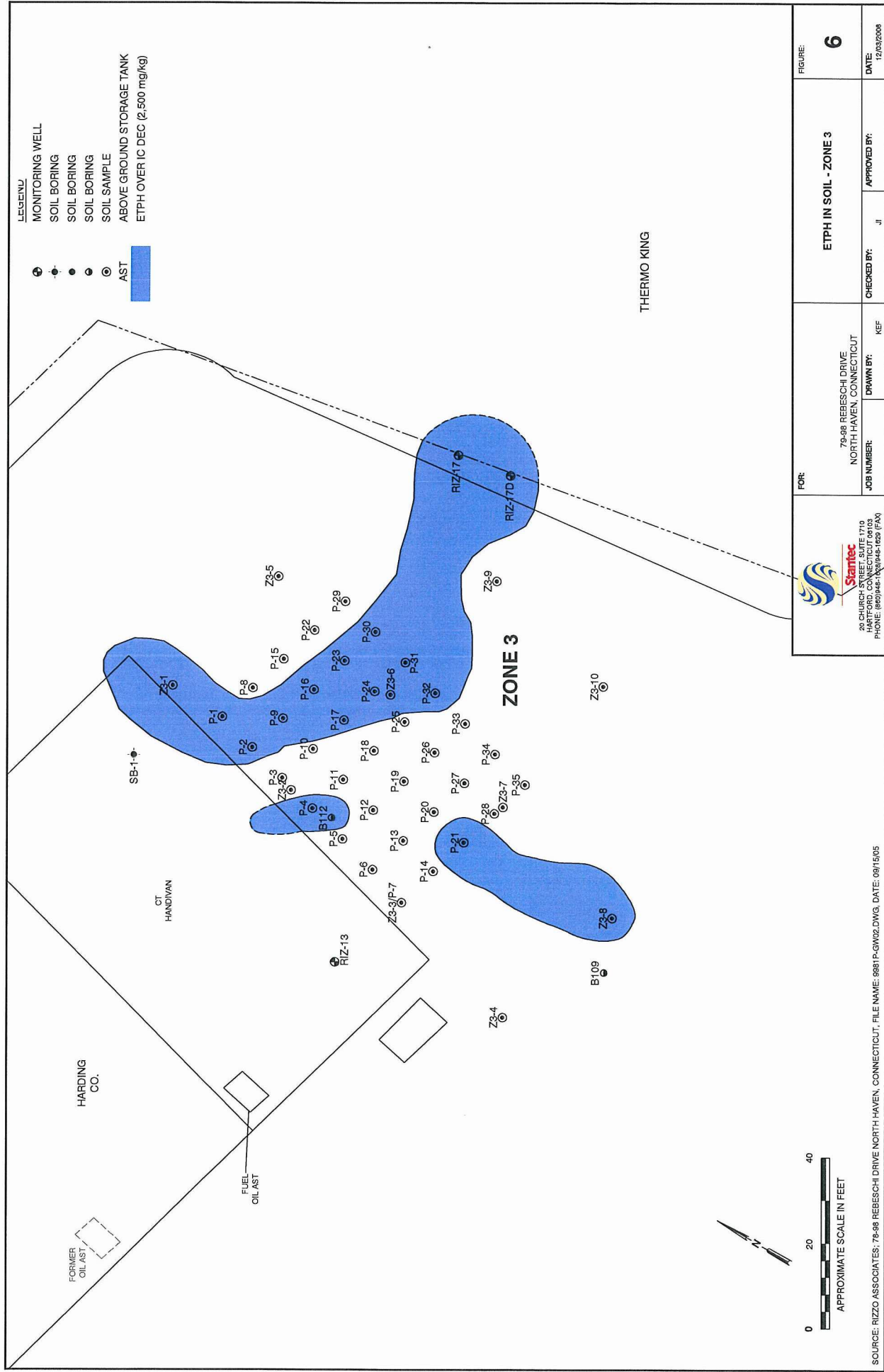


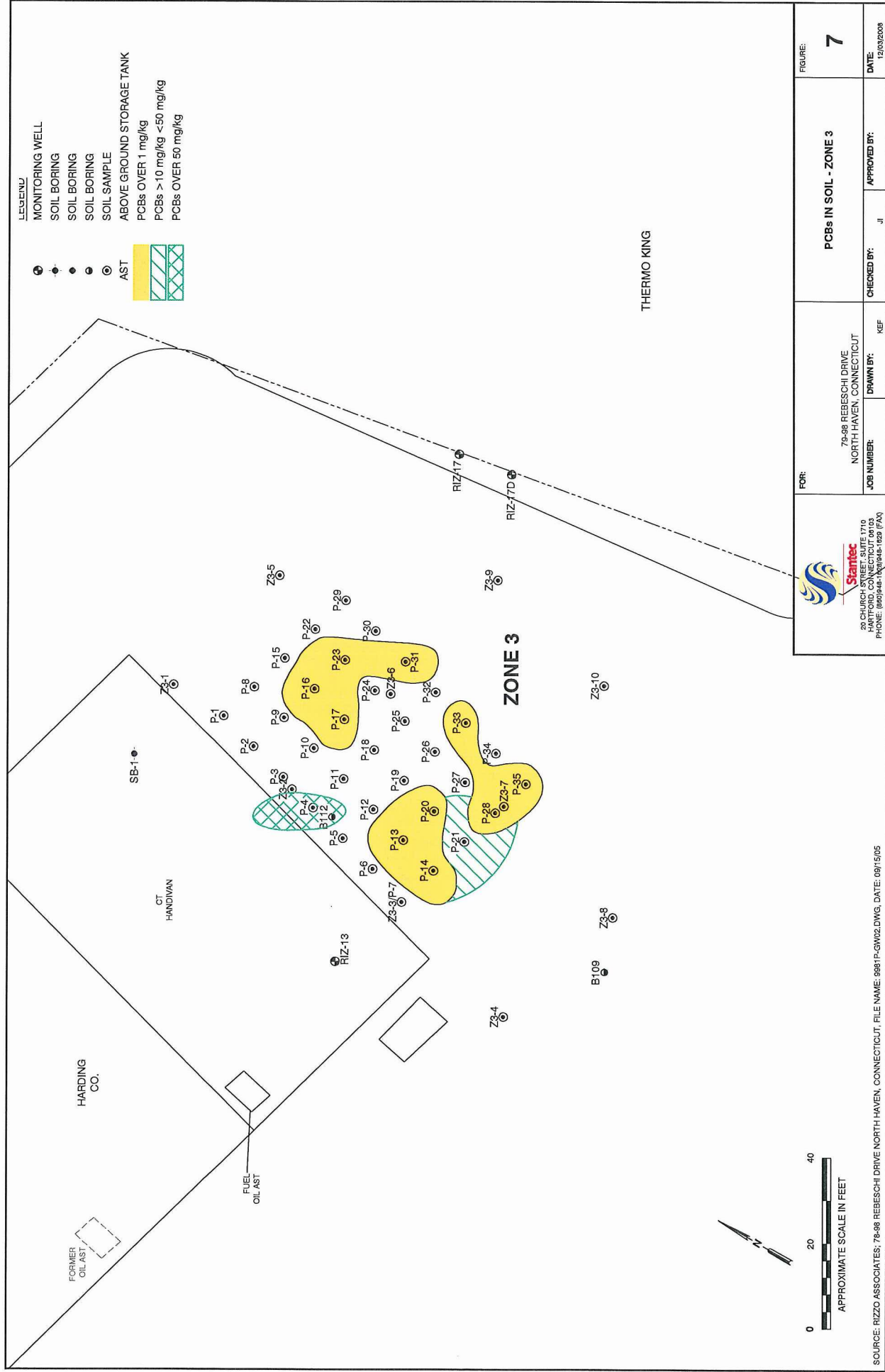


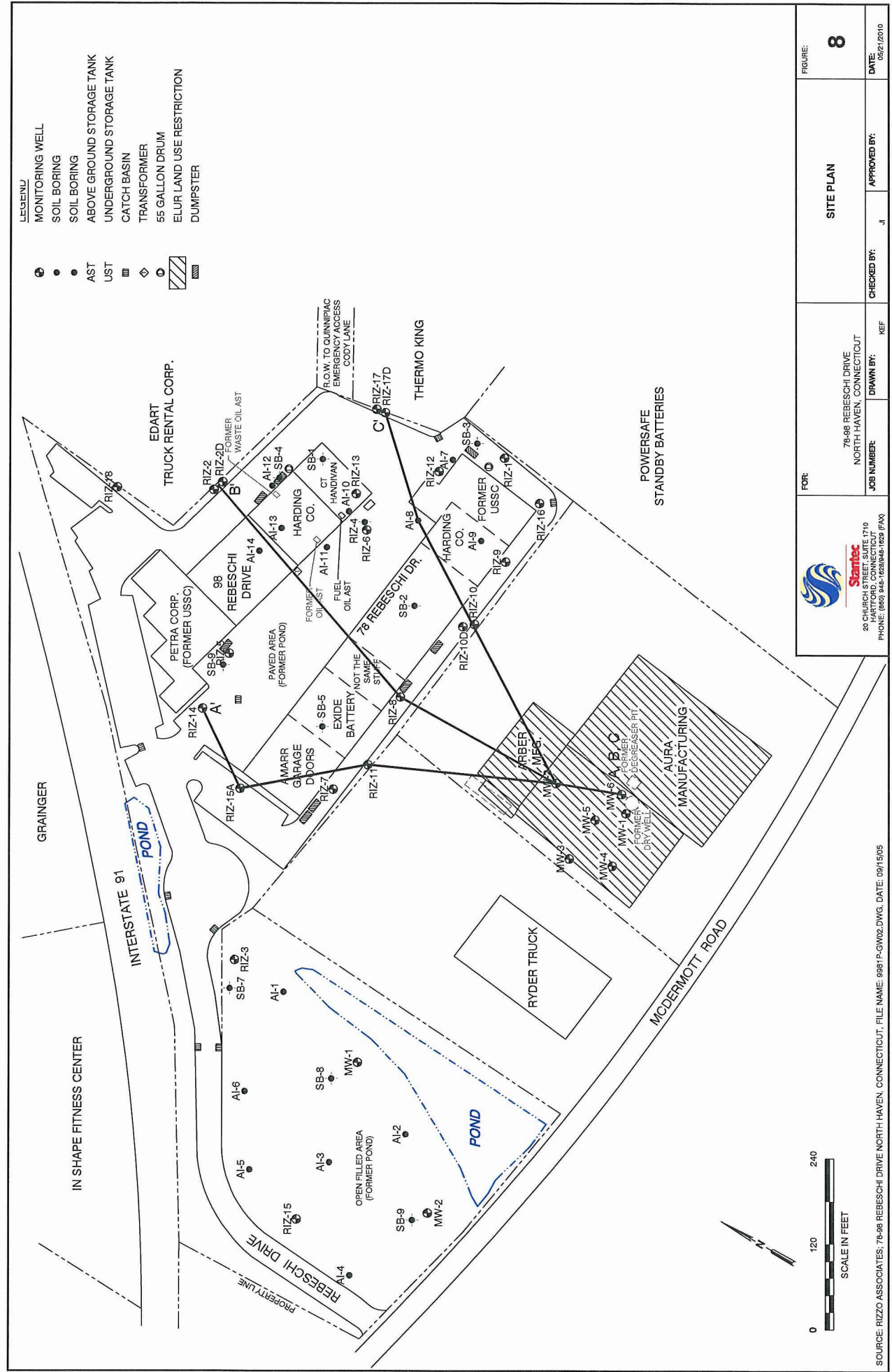


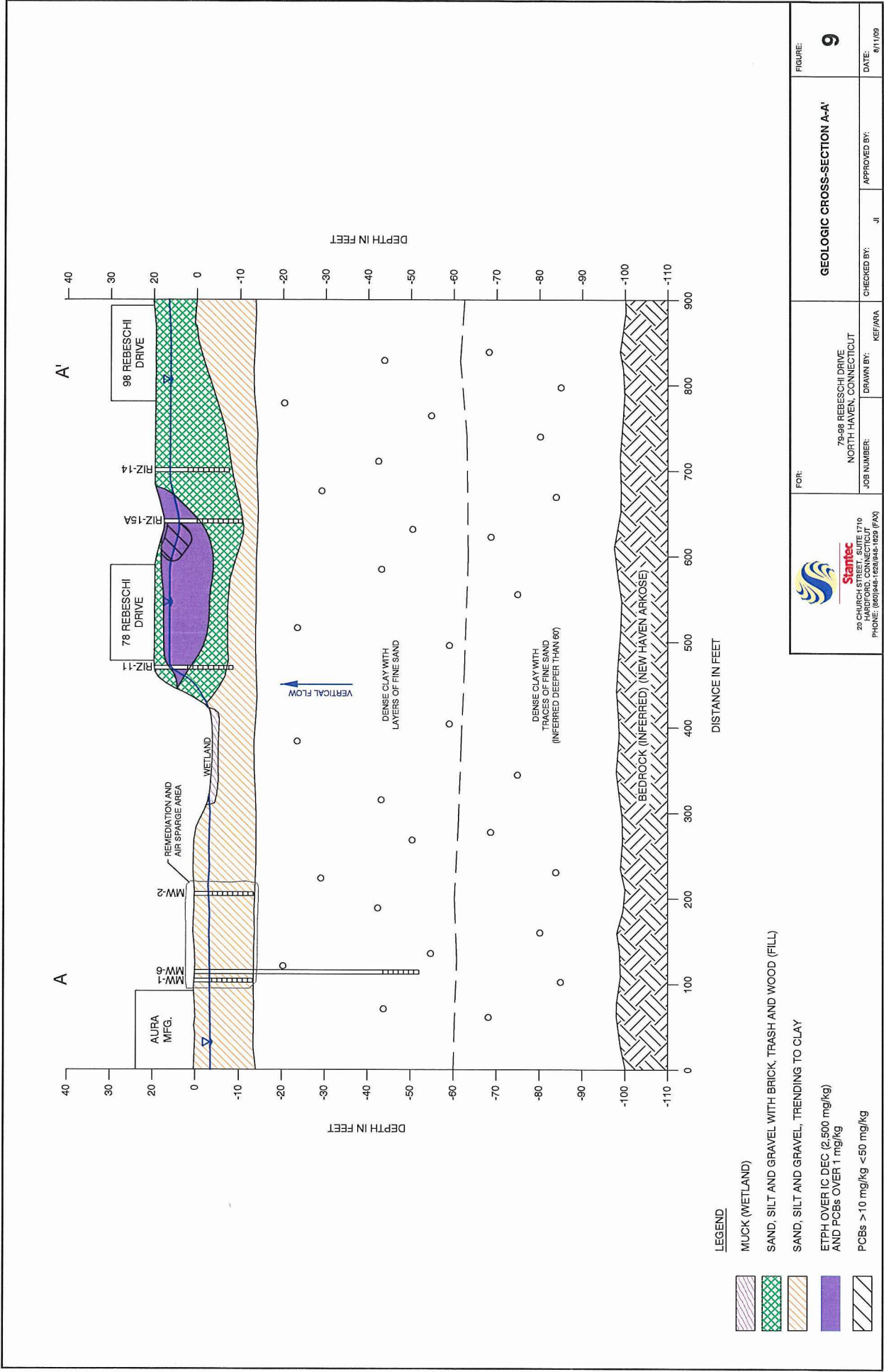




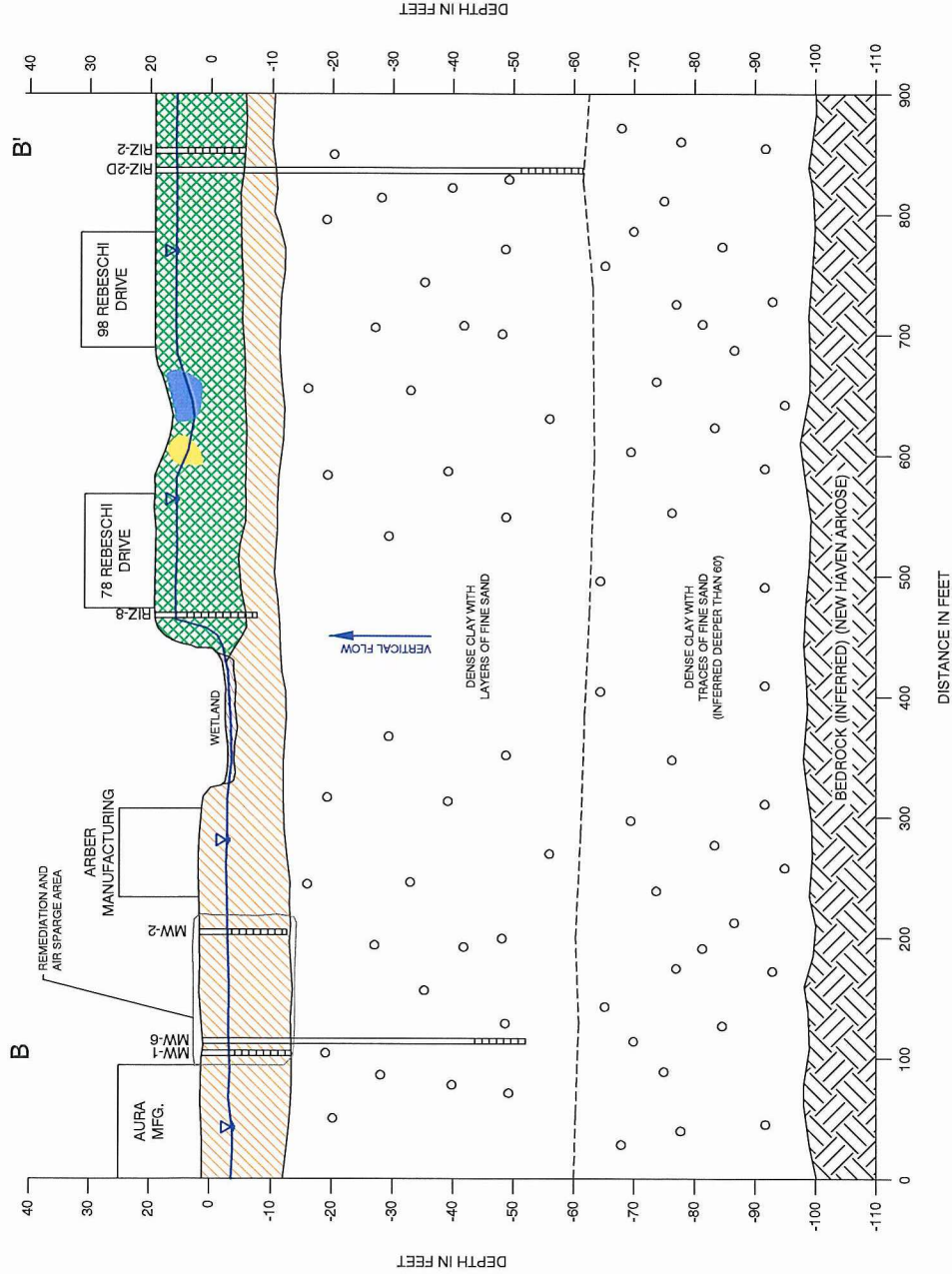








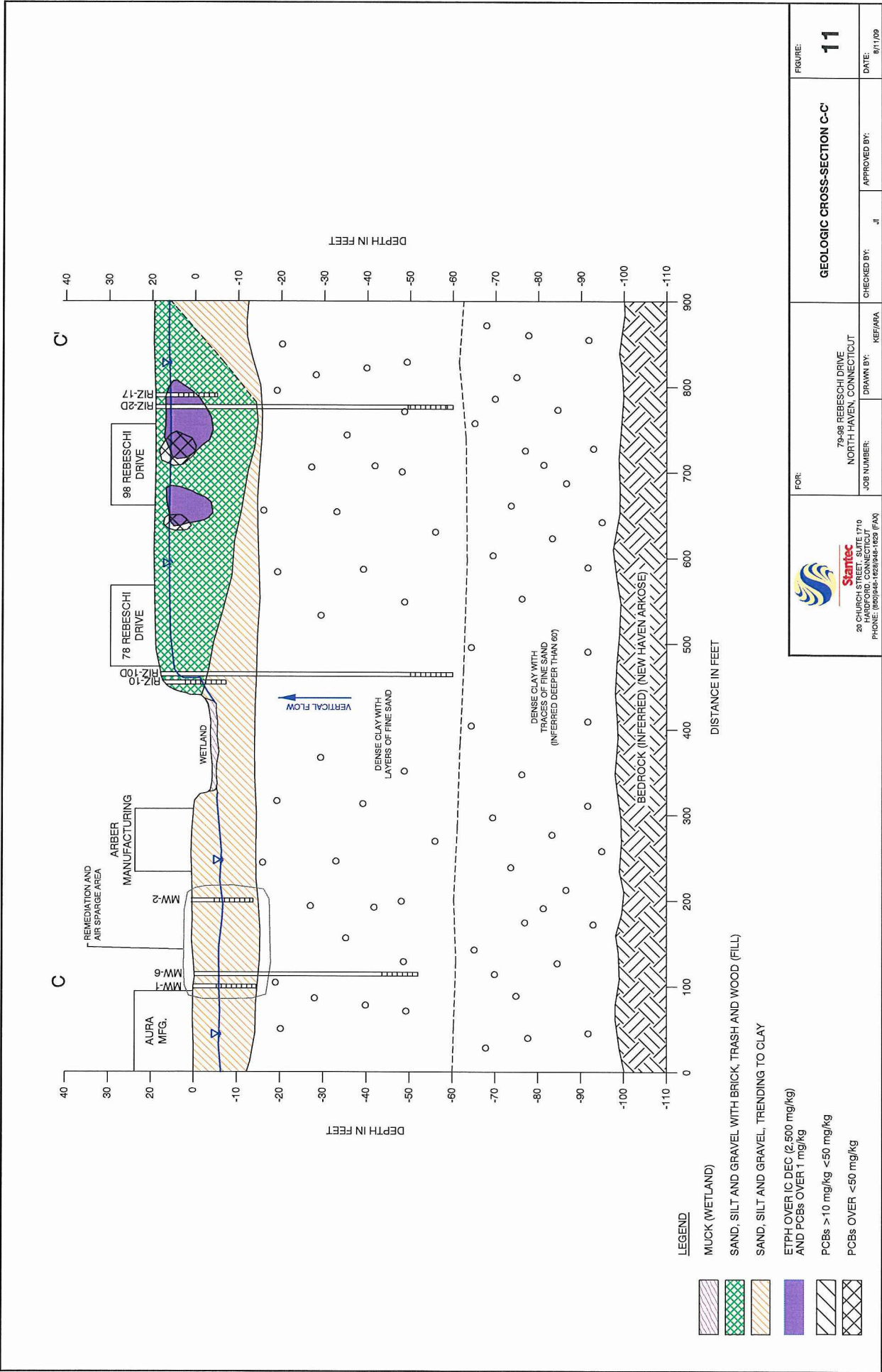




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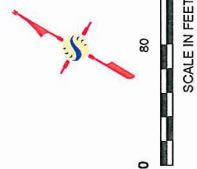
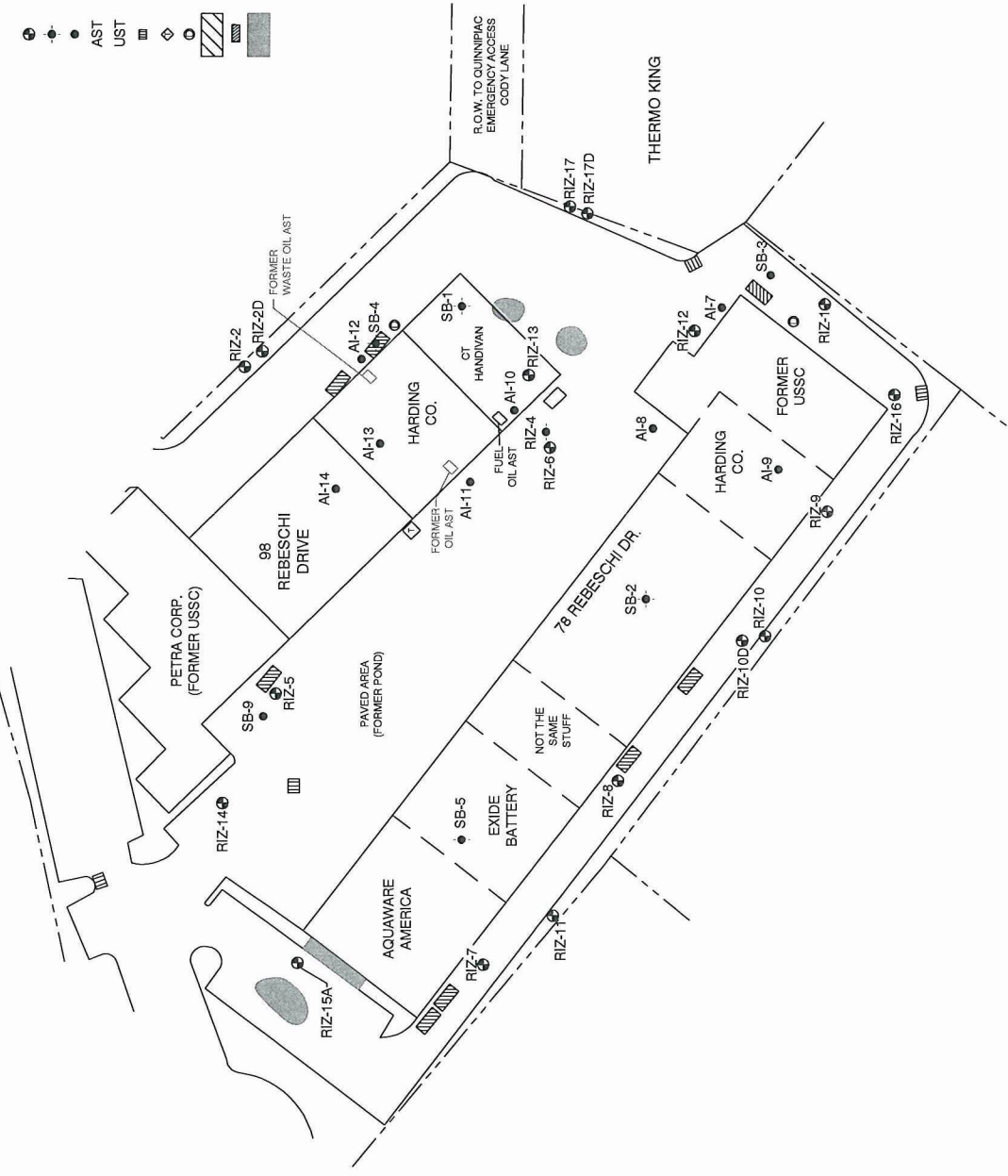
- MUCK (WETLAND)
- SAND, SILT AND GRAVEL WITH BRICK, TRASH AND WOOD (FILL)
- SAND, SILT AND GRAVEL, TRENDING TO CLAY
- ETPH OVER 10 DEC (2,500 mg/kg)
- PCBs OVER 1 mg/kg


FOR:		79-98 REBESCHI DRIVE NORTH HAVEN, CONNECTICUT		FIGURE: <b>10</b>	
20 CHURCH STREET, SUITE 1710 NORTH HAVEN, CT 06460 PHONE: (860) 948-1028 / 948-1029 (FAX)		JOB NUMBER:	DRAWN BY: KEF/ARA	CHECKED BY: JI	APPROVED BY:
DATE: 8/11/09					



**LEGEND**

- MONITORING WELL
- SOIL BORING
- AST
- ABOVE GROUND STORAGE TANK
- UNDERGROUND STORAGE TANK
- CATCH BASIN
- TRANSFORMER
- 55 GALLON DRUM
- ELUR LAND USE RESTRICTION
- DUMPSTER
- PROPOSED SOIL EXCAVATION AREA



FOR:		PROPOSED SOIL EXCAVATION AREAS		FIGURE:	12
 20 CHURCH STREET, SUITE 1710 NORTH HAVEN, CONNECTICUT 06460 PHONE: (860) 945-1000 FAX: (860) 945-1001		78-98 REBESCHI DRIVE NORTH HAVEN, CONNECTICUT		DATE:	07/28/2010
JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:		
	KEF	JJ			

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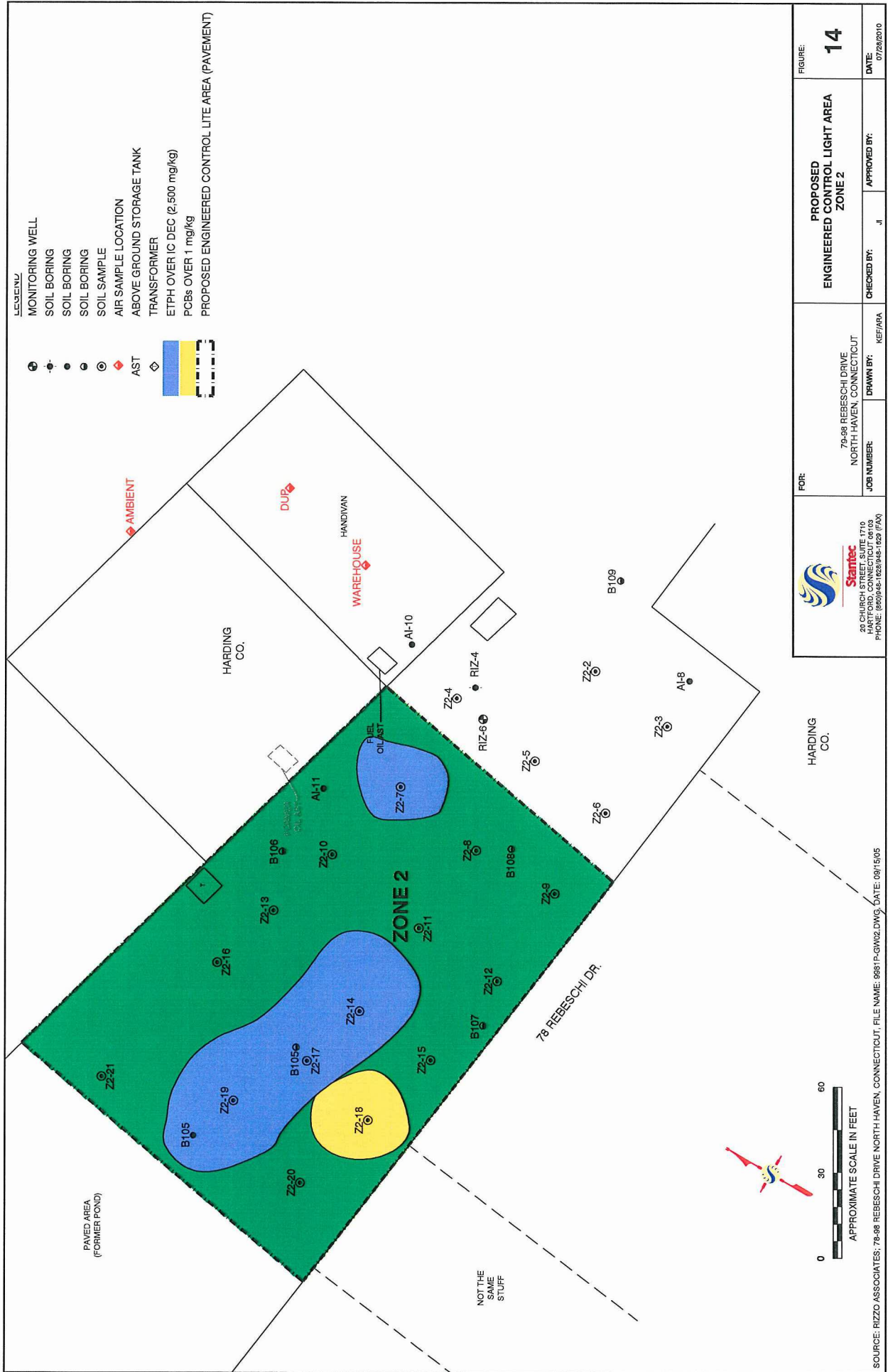
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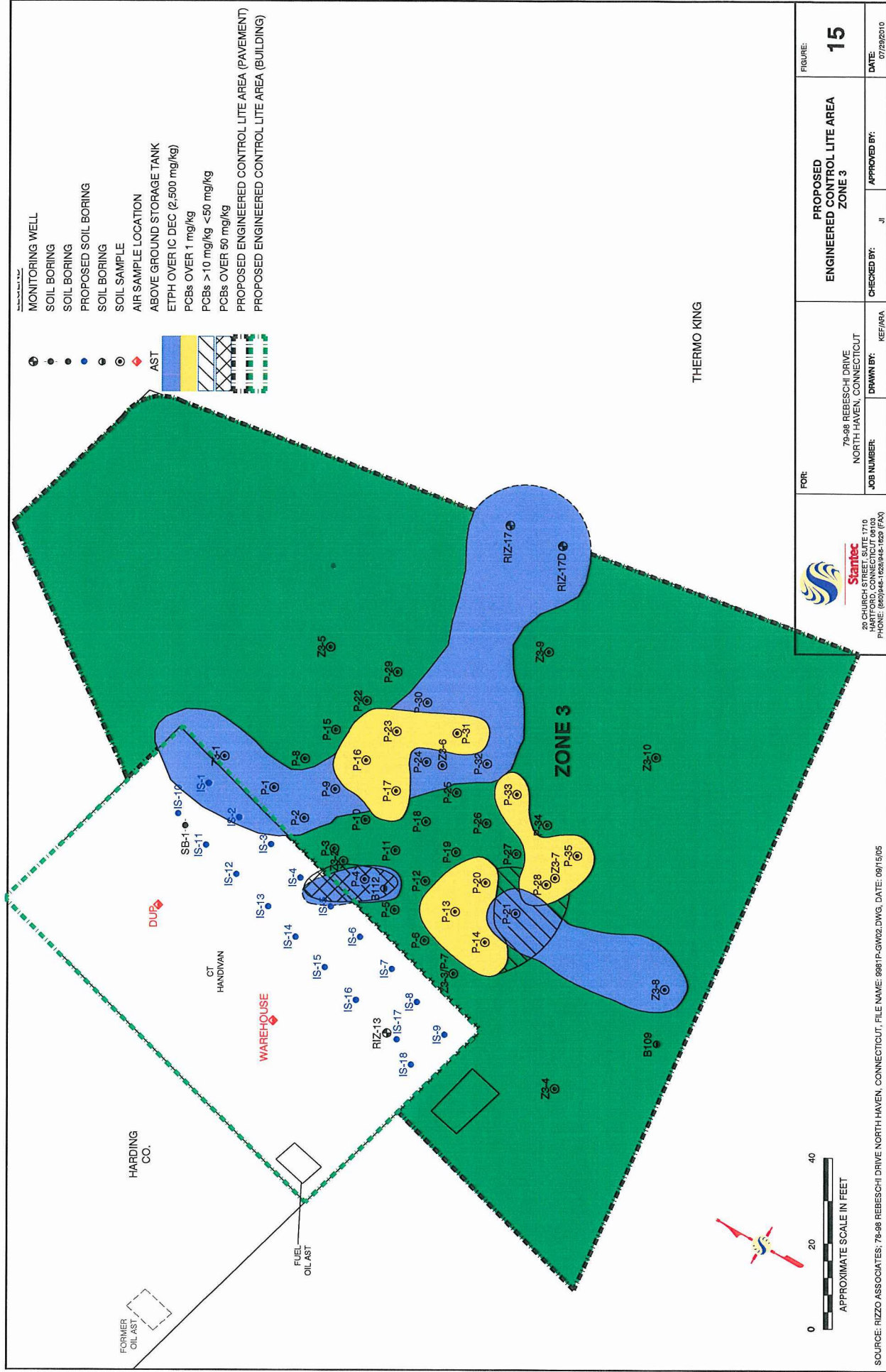




<p>29 CHURCH STREET, SUITE 1710 NORTH HAVEN, CONNECTICUT PHONE: (860)945-1030 FAX: (860)945-1030</p>		<p>FOR:</p> <p>79-98 REBESCHI DRIVE NORTH HAVEN, CONNECTICUT</p>	<p>PROPOSED ENGINEERED CONTROL LITE AREA ZONE 1</p>	<p>FIGURE: <b>13</b></p>
<p>JOB NUMBER:</p>	<p>DRAWN BY:</p>	<p>CHECKED BY:</p>	<p>APPROVED BY:</p>	<p>DATE:</p>
				07/28/2010







SOURCE: RIZZO ASSOCIATES; 78-98 REBESCHI DRIVE NORTH HAVEN, CONNECTICUT. FILE NAME: 9881P-GW02.DWG, DATE: 09/15/05  
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**A**

## **PCB AND PETROLEUM IMPACTED SOIL DELINEATION**

**78-98 Rebesch Drive  
North Haven, Connecticut**

**Prepared For:  
Winstanley Enterprises LLC**

**December 4, 2008  
630T.0.01297.08**



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**stantec.com**

## **PCB AND PETROLEUM IMPACTED SOIL DELINEATION**

**78-98 Rebesch Drive  
North Haven, Connecticut**

**Stantec PN: 63OT.01297.08/0003**

**Submitted by:  
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Hartford, Connecticut 06103**

**Prepared for:  
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Suite 303  
Concord, MA 01742**

**December 4, 2008**

**Reviewed by:**

A handwritten signature in black ink, appearing to read 'John Insall', is positioned above the printed name.

**John Insall, L.E.P.  
Senior Project Manager**

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## 1.0 EXECUTIVE SUMMARY

Stantec Consulting Services, Inc. (STANTEC) is pleased to present the findings of extractable total petroleum hydrocarbons (ETPH) and polychlorinated biphenyls (PCBs) impacted soil delineation in three areas of the property. During site characterization in 2007 and 2008, STANTEC identified three areas where elevated ETPH and PCB concentrations exist. The areas were designated Zones 1 through 3. Zone 1 is located in the Aquaware of America parking lot at the west-side of 78 Rebesch Drive. Zone 2 is located in the paved parking areas between 78 and 98 Rebesch Drive. Zone 3 is located at the east-side of the 98 Rebesch Drive building. Data collected during the initial investigation activities are included in Table 1.

PCBs (55 mg/kg) were detected above 50 mg/kg in Zone 3, the threshold for regulation under the Toxic Substances Control Act (TSCA). The results of the initial investigation were communicated to Ms. Kim Tisa, EPA Region 1 PCB Coordinator. EPA confirmed that the self implementing TSCA investigation and remediation requirements apply to the site. EPA suggested that an appropriate soil sampling grid would be 10 feet on center in those areas where PCBs exist over 50 mg/kg. In other areas, EPA indicated that a less concentrated sampling grid may be appropriate.

STANTEC developed a Quality Assurance Project Plan (QAPP) that governed the sampling activities, protocols, and data analysis for the impacted soil delineation project. A copy of the QAPP is appended to this document.

Soil samples were collected in a grid established by STANTEC to respond to the EPA's recommendations. The sampling protocol was also designed to provide data for site characterization under the Connecticut Transfer Act and Remediation Standard Regulations (RSRs). As such, selected samples were also analyzed for ETPH. During sampling, heavy hydrocarbon odors were encountered. In those locations, STANTEC modified the Contaminant of Concern (COC) list to include semi-volatile organic compounds (SVOCs).

ETPH was measured above the industrial/commercial criteria (IC DEC) in soil samples collected from 3 to 12 feet below grade in Zone 1 (Figure 2). The highest petroleum concentrations were measured in the saturated groundwater zone from 7-12 fbg. This depth represents the smear zone where groundwater fluctuates during the year. Based on field observations and groundwater elevations, it appears that the seasonal high groundwater table is 7-8 fbg. Elevated PCB concentrations were also detected in this area. PCBs over 10 mg/kg were encountered in the center of the petroleum impacted area (Figure 3).

ETPH was measured above the IC DEC at the west-side of Zone 2 from 3-4 fbg (Figure 4). Lower ETPH concentrations were detected in the smear zone. An isolated area of PCB impacted soil was identified at Z2-18 from 7-8 fbg (Figure 5).

ETPH was measured above the IC DEC in three areas of Zone 3 (Figure 6). The highest ETPH concentrations were detected from 7-15 fbg. The depth to the seasonal high groundwater table is approximately 7-8 fbg. PCBs were also detected in several areas of Zone 3. The highest PCB concentrations were detected in areas that are partially coincident with the elevated ETPH zones. As a result, PCBs may be associated with elevated ETPH in some instances (Figure 7).

Elevated SVOC concentrations were detected in the samples submitted for SVOC analysis. The SVOC concentrations exceeded the GB PMC and/or IC DEC in most of the samples submitted for SVOC analysis. VOCs were mostly coincident with petroleum and PCB impacted soil.



Figures 8, 9, 10, and 11 are geologic cross-sections that conceptually illustrate the impacted soil zones.

Based on the delineation data, STANTEC revised the conceptual site model (CSM) for the site. Historical property uses included brick manufacturing and clay mining (for brick stock). Historical mining created a large pond on-site. In the 1950s, 1960s, and 1970s the pond was filled. The site was redeveloped in the 1980s as a light commercial and industrial complex. Soil and groundwater sampling has been conducted from the mid 1990s to the present. Based on these investigations, it does not appear that on-site operations since redevelopment have resulted in releases of petroleum or hazardous materials.

ETPH, PCBs, and SVOCs have been detected in saturated and unsaturated soil. The source of PCBs and ETPH appears to be historical fill materials, since most soil on-site contains significant quantities of wood, ash, brick, and other debris. Elevated SVOC concentrations may be partly attributable to the disposal of wood ash. Wood was used to fire bricks from the late 1800s to 1950s. However, since field observations suggest that the SVOCs are part of a heavy petroleum product mixed with wood debris, the SVOCs may be related to creosote wood preservative waste deposited as fill from an off-site source. No historical wood preserving was conducted on-site.

Groundwater at the site may be impacted by VOCs and SVOCs. For example, benzene exceeds the SWPC at RIZ-15A. Since RIZ-15A is near an on-site pond and the Quinnipiac River, groundwater remediation may be required to reduce benzene and other organics above the SWPC in groundwater. Similarly, groundwater remediation may be required to address exceedances of the volatilization criteria.

Based on the nature of surficial deposits, we anticipate that off-site migration is not occurring. Similarly, since the site is located in a GB area, we do not anticipate that groundwater is used as a drinking water source. No endangered species are known to exist on-site. As a result, no sensitive receptors were identified.

Remediation strategies may include the removal of PCBs over 10 mg/kg, the use of an engineered control for PCBs between 1 and 10 mg/kg, soil remediation by excavation in the unsaturated and saturated zones, in-situ treatment in the saturated zone using bioremediation or oxidation, the use of an environmental land use restriction (ELUR), and natural attenuation monitoring. The draft revisions to the RSRs may permit some petroleum to remain. Alternatively, it may be possible to obtain a variance for some ETPH that is not practical to remove or treat in situ.

## **Conclusions**

The data are suitable to support a work plan for remediation of the petroleum, PCB, and SVOC release areas at the site. STANTEC is developing a remediation work plan for submission to DEP and EPA for comment under the TSCA self implementing remediation regulations. The data are also suitable for designing a remedial strategy for compliance with the RSRs.

A sensitive receptor survey is required to confirm that no sensitive receptors exist in the vicinity.

## 2.0 INTRODUCTION

STANTEC conducted the petroleum and PCB impacted soil delineation project to provide data for impacted soil zones that may require remediation. The investigation was designed to provide data on the horizontal and vertical extent of impacted soil. Each soil boring was advanced to 15 fbg to evaluate soil to the depth at which the Direct Exposure Criteria (DEC) applies. In general, multiple samples were collected from each soil boring to provide vertical profile data.

Historical fill materials were identified as the Area of Concern (AOC) with which the impacted soil was identified. Based on historical sampling data, it does not appear that historical operations since redevelopment have resulted in a release of hazardous substances or petroleum to soil or groundwater. A contaminant of concern (COC) list was developed for the fill based on historical sampling results. STANTEC determined that ETPH and PCBs were the appropriate COCs for this AOC. However, based on field observations, STANTEC added semi-volatile organic compounds (SVOCs) to the COC list. In most cases, the heavy hydrocarbons noted during sampling appeared to be related to a heavy weight petroleum product such as creosote or wood preserving waste. A large volume of wood waste was also found in the impacted fill. The source of the wood could not be determined, but may be related to wood preserving wastes, if deposited at the site.

The presence of PCBs in historical wood preservatives is documented in available literature regarding the use of PCBs. Wood preserving, using creosote and PCBs, was conducted at other sites in North Haven, including the nearby Moss American Superfund site on Universal Drive. As such, it is possible that fill impacted with creosote and PCBs from off-site was used to fill the on-site pond. STANTEC has contacted EPA Region 1 to determine if EPA has additional information regarding the placement of fill contaminated with PCBs and creosote in North Haven.

The sampling and impacted soil delineation was conducted under a Quality Assurance Project Plan (APP) (Appendix A).

### **3.0 PRELIMINARY ACTIVITIES**

To evaluate PCB and petroleum impacted fill, STANTEC advanced 78 soil borings in the three impacted soil zones. Samples were analyzed for ETPH and PCBs by EPA Method 8081B, using EPA extraction Method 3540C.

Prior to soil boring and monitoring well installation, STANTEC contacted Call Before You Dig to obtain a utility clearance for well and boring locations. STANTEC was issued ticket numbers 20083303279.

In addition, STANTEC retained a private utility locating service (Underground Construction Services, Inc.) to clear individual boring locations. Individual soil boring locations

## 4.0 SOIL SAMPLING

Soil samples were collected from borings and monitoring well locations between August 23, 2008 and September 29, 2008 using a Geoprobe and truck mounted drilling rig. Soil at each location was screened with a calibrated PID equipped with an 11.7 eV lamp.

In zones 1 and 2, and part of Zone 3, soil borings were spaced 35-40 feet on center to address Transfer Act site characterization requirements. In zone 3, soil borings were positioned 10 feet on center in the TSCA regulated area. In the Transfer Act regulated area of Zone 3, two selected soil borings were collected from each boring and analyzed for PCBs by EPA method 3540C and ETPH. In some instances where no recovery or refusal was encountered, it was not possible to collect the planned number of samples.

Soils selected for analysis were based on field screening results. In the Transfer Act regulated areas of zones 1 and 2, soil samples were collected 1) when impacted soil became evident, and 2) below the saturated groundwater zone (where it appeared the release diminished). Since the DEC applies to 15 fbg, each boring was advanced to 15 fbg. In the TSCA regulated areas, soil samples were collected every other foot from the surface to 15 fbg and analyzed for PCBs by EPA Method 3540c. Selected soil samples in the TSCA regulated area were also submitted for ETPH analysis. These soil samples were based on field screening results and designed to delineate the volume of ETPH impacted soil in this area.

Soil samples were collected using a direct push Geoprobe. Soil was collected from the appropriate sampling interval using disposable polyethylene scoops. Soil from the representative depth was homogenized in disposable paper bowls. Each sample was homogenized in new and uncontaminated scoops and bowls before being transferred into laboratory glassware. Samples were labeled and recorded on a chain of custody (COC) on a daily basis.

Soil descriptions were recorded in the field. Field screening results including PID readings, staining, grain characteristics, and the presence of fill materials were also recorded.

Prior to delivery to the laboratory, soil samples were stored on ice at 4 degrees Celsius.

All soil samples were collected using the CT DEP soil sampling guidance document dated February 2006.

After each soil boring had been completed, borings were backfilled with soil cuttings and the surface was repaired with asphalt patch or concrete, as appropriate.

Soil will be delivered to the lab for PCB and ETPH analyses using extraction method 3540c. Selected samples were also analyzed for SVOCs by EPA Method 8270.

Non-dedicated sampling equipment used, such as Geoprobe shoes, were cleaned and decontaminated at a decontamination pad by scrubbing with Alconox, rinsing with a fresh water rinse, rinsing with hexane, and air drying before re-use.

## 5.0 SOIL SAMPLING RESULTS

ETPH was measured above the industrial/commercial criteria (IC DEC) in soil samples collected from 3 to 12 feet below grade in Zone 1 (Figure 2). The highest petroleum concentrations were detected in the saturated groundwater zone from 7-12 fbg. This depth represents the smear zone where groundwater fluctuates during the year. Based on field observations and groundwater elevations, it appears that the seasonal high groundwater table is 7-8 fbg. Elevated PCB concentrations were also detected in this area. PCBs over 10 mg/kg were encountered in the center of the petroleum impacted area (Figure 3).

ETPH was measured above the IC DEC at the west-side of Zone 2 from 3-4 fbg (Figure 4). Lower ETPH concentrations were detected in the smear zone. An isolated area of PCB impacted soil was identified at Z2-18 from 7-8 fbg (Figure 5).

ETPH was measured above the IC DEC in three areas of Zone 3 (Figure 6). The highest ETPH concentrations were detected from 7-15 fbg. The depth to the seasonal high groundwater table is approximately 7-8. PCBs were detected in several areas in Zone 3. The highest PCB concentrations were detected in areas that are partially coincident with the elevated ETPH zones. As a result, PCBs may be associated with elevated ETPH (Figure 7).

Elevated SVOC concentrations were detected in the samples submitted for SVOC analysis. The SVOC concentrations exceeded the GB PMC and/or IC DEC in most samples submitted for analysis. VOCs were mostly coincident with petroleum and PCB impacted soil.

Figures 8, 9, 10, and 11 are geologic cross-sections that conceptually illustrate the impacted soil zones.

## 6.0 REVISED CONCEPTUAL SITE MODEL

Based on the newly obtained data, STANTEC revised the conceptual site model (CSM) for the site. Historical property uses included brick manufacturing and clay mining (for brick stock). Historical mining created a large pond on-site. In the 1950s, 1960s and 1970s, the pond was filled. The site was redeveloped in the 1980s as a light commercial and industrial complex. Soil and groundwater sampling has been conducted from the mid 1990s to the present. Based on these investigations, it does not appear that on-site operations since redevelopment have resulted in releases of petroleum or hazardous materials.

Petroleum (ETPH), PCBs, and SVOCs have been detected in saturated and unsaturated soil. The source of PCBs and ETPH appears to be historical fill materials, since most soil on-site contains significant quantities of wood, ash, brick, and other debris. Elevated SVOC concentrations may be partly attributable to the disposal of wood ash. Wood was used to fire bricks from the late 1800s to 1950s. However, since field observations suggest that the SVOCs are part of a heavy petroleum product mixed with wood debris, the SVOCs may be related to creosote wood preservative waste deposited as fill from an off-site source. No historical wood preserving was conducted on-site.

Based on the nature of surficial deposits, we anticipate that off-site migration is not occurring. Similarly, since the site is located in a GB area, we do not anticipate that groundwater is used as a drinking water source. No endangered species are known to exist on-site. As a result, no sensitive receptors were identified.

## 7.0 REMEDIATION STRATEGY

Remediation strategies may include the removal of PCBs over 10 mg/kg, the use of an engineered control for PCBs between 1 and 10 mg/kg, soil remediation by excavation in the unsaturated and saturated zones, in-situ treatment in the saturated zone using bioremediation or oxidation, the use of an environmental land use restriction (ELUR), and natural attenuation monitoring. The revised RSRs may permit some petroleum to remain under certain conditions. Alternatively, it may be possible to obtain a variance for some ETPH that is not practical to remove or treat in situ.

The use of ORCs to treat petroleum and SVOCs in-situ would be subject to the DEP's soon to be released *Oxygen Releasing General Permit*. The draft permit will be released for public comment in mid-December 2008. The permit is intended to streamline the permit approval process to supply oxygen or other electron donors to biologically treat petroleum based products.

The other remediation strategies will require discussion with DEP and EPA.

## 8.0 VOLUMETRIC CALCULATIONS

Based on the data, STANTEC calculated volume estimates for the impacted soil zones above the regulatory criteria. Since the site may be suitable for an ELUR for non-residential use, the IC DEC as the threshold for calculating soil volumes.

Estimated soil volumes exceeding regulatory criteria are summarized below. Soil in these zones will require excavation, in-situ treatment or other management strategies available under the RSRs. EPA may also allow certain soils to remain in place under certain conditions.

### Zone 1

ETPH Impacted Soil = 2,533 yds<sup>3</sup>  
PCB Impacted Soil (1 to 10 mg/kg) = 1,700 yds<sup>3</sup>  
PCB Impacted Soil (10 to 50 mg/kg) = 200 yds<sup>3</sup>

### Zone 2

ETPH Impacted Soil = 1,466 yds<sup>3</sup>  
PCB Impacted Soil (1 to 10 mg/kg) = 200 yds<sup>3</sup>

### Zone 3

ETPH Impacted Soil = 1,288 yds<sup>3</sup>  
PCB Impacted Soil (1 to 10 mg/kg) = 500 yds<sup>3</sup>  
PCB Impacted Soil (10 to 50 mg/kg) = 175 yds<sup>3</sup>  
PCB Impacted Soil (over 50 mg/kg) = 100 yds<sup>3</sup>

The data will be used to develop a work plan for DEP and EPA approval. Impacted soil estimates are approximate and can change when additional data become available.



## **9.0 DATA QUALITY REVIEW**

STANTEC reviewed the data package provided by the laboratory for each sample lot. The data review was intended to ensure that the data meet data quality objectives set by STANTEC.

- No significant data quality issues were identified during the review.
- In addition, no significant deviations in analytical methods, sampling handling, or chain of custody were identified.

## 10.0 CONCLUSIONS

The data are suitable to support a work plan for remediation of the petroleum, PCB, and SVOC release areas at the site. STANTEC is developing a remediation work plan for submission to DEP and EPA for comment under the TSCA self implementing remediation regulations. The data are also suitable for designing a remedial strategy for compliance with the RSRs.

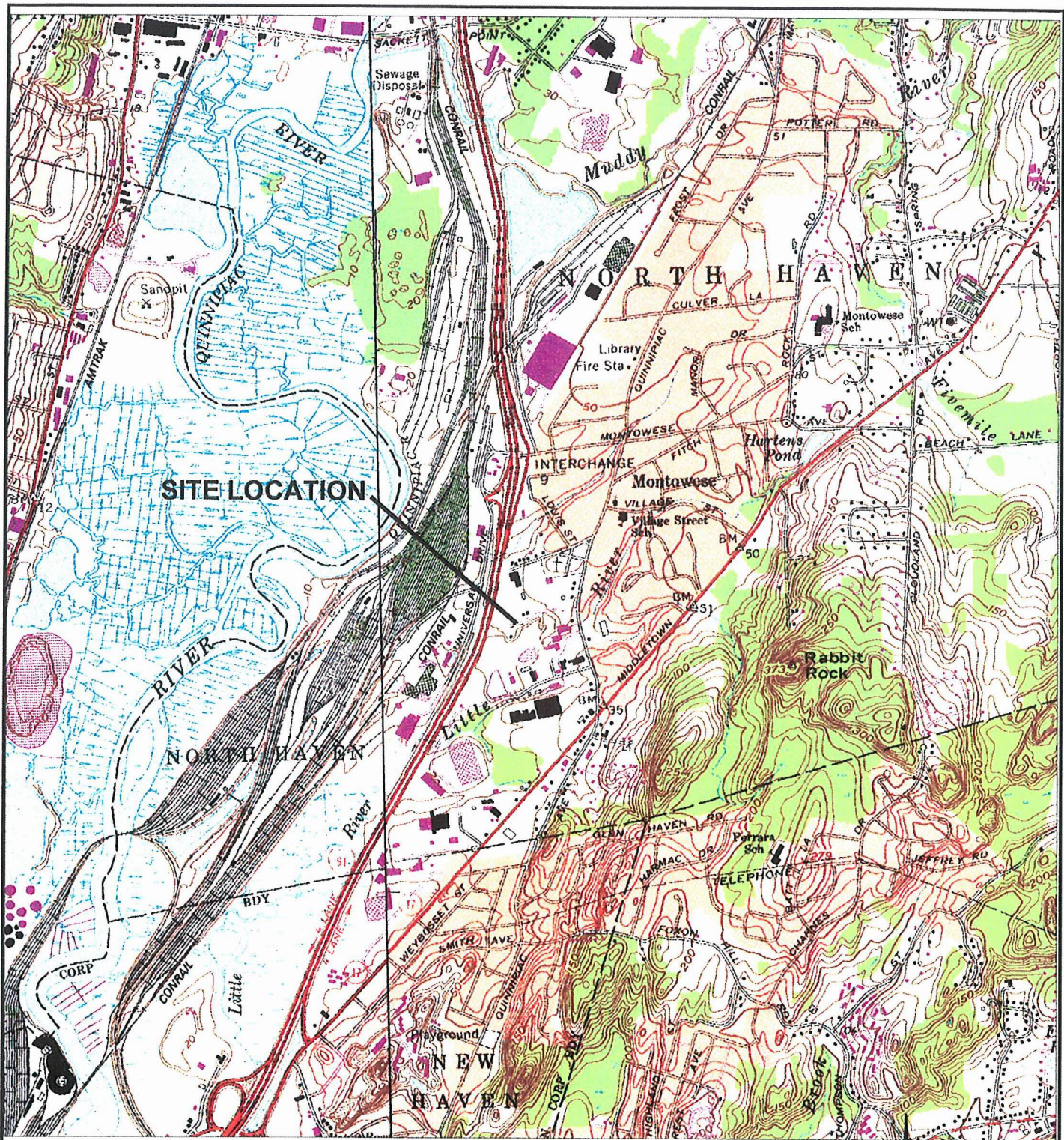
A sensitive receptor survey is required to confirm that no sensitive receptors exist in the vicinity.

## STATEMENT OF LIMITATIONS

The conclusions presented in this report are professional opinions based on data described in this report. These opinions have been arrived at in accordance with currently accepted environmental industry standards and practices applicable to the work described in this report. The opinions presented are subject to the following inherent limitations:

1. This report was prepared for the exclusive use of the entity referenced in Section 1.0. No other entity may rely on the information presented in the report without the expressed written consent of STANTEC. Any use of the Phase I report constitutes acceptance of the limits of STANTEC's liability. STANTEC's liability extends only to its client and not to any other parties who may obtain the Phase I report.
2. STANTEC derived the data in this report primarily from visual inspections, examination of records in the public domain, and interviews with individuals having information about the site. The passage of time, manifestation of latent conditions, or occurrence of future events may require further study at the site, analysis of the data, and reevaluation of the findings, observations, and conclusions in the report.
3. The data reported and the findings, observations, and conclusions expressed in the report are limited by the scope of work. The scope of work is presented in Section 2.0 and was agreed to by the client.
4. STANTEC's PCB AND PETROLEUM IMPACTED SOIL DELINEATION REPORT present professional opinions and findings of a scientific and technical nature. The report shall not be construed to offer legal opinion or representations as to the requirements of, nor compliance with, environmental laws, rules, regulations, or policies of federal, state, or local governmental agencies.
5. The conclusions presented in this report are professional opinions based on data described in this report. They are intended only for the purpose, site location, and project indicated. This report is not a definitive study of contamination at the site and should not be interpreted as such. An evaluation of subsurface soil and groundwater conditions was not performed as part of this investigation, unless indicated in Section 2.0. No sampling or chemical analyses of structural materials or other media was completed as part of this study unless explicitly stated in Section 2.0.
6. This report is based, in part, on unverified information supplied to STANTEC by third-party sources. While efforts have been made to substantiate this third-party information, STANTEC cannot guarantee its completeness or accuracy.






SOURCES:  
USGS 7.5 MINUTE  
TOPOGRAPHIC MAPS—  
NEW HAVEN, CT AND  
BRANFORD, CT QUADRANGLES

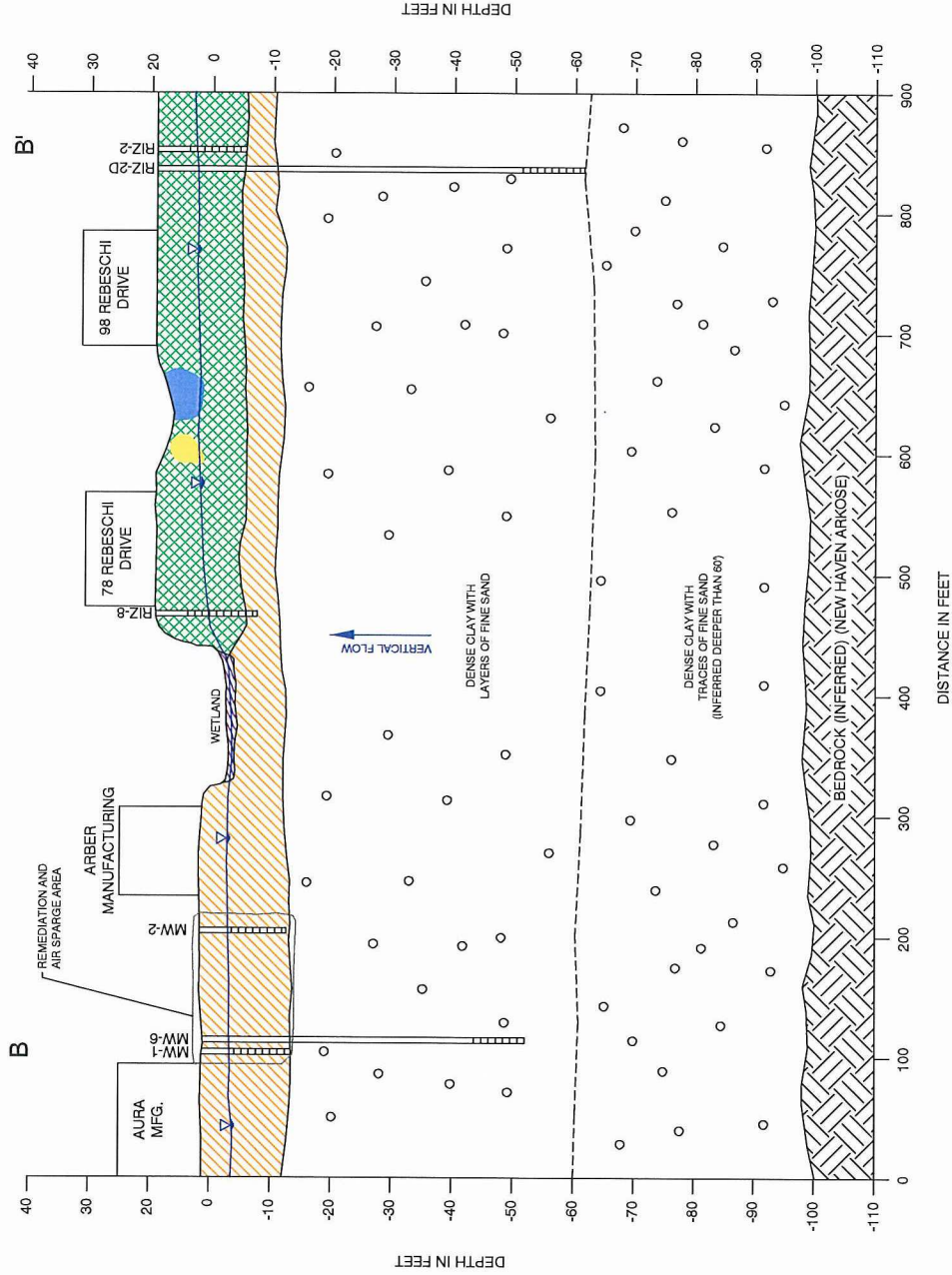



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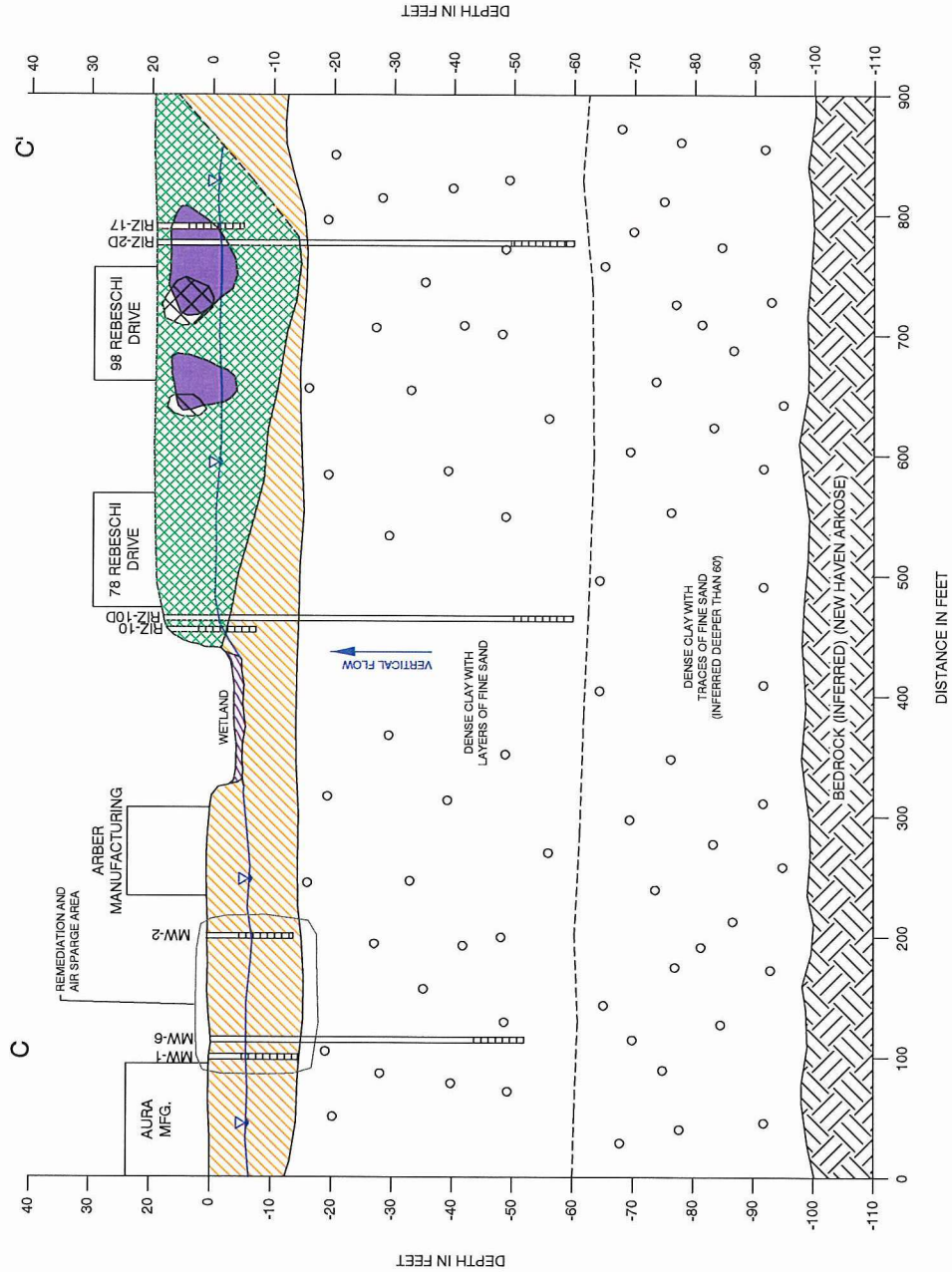
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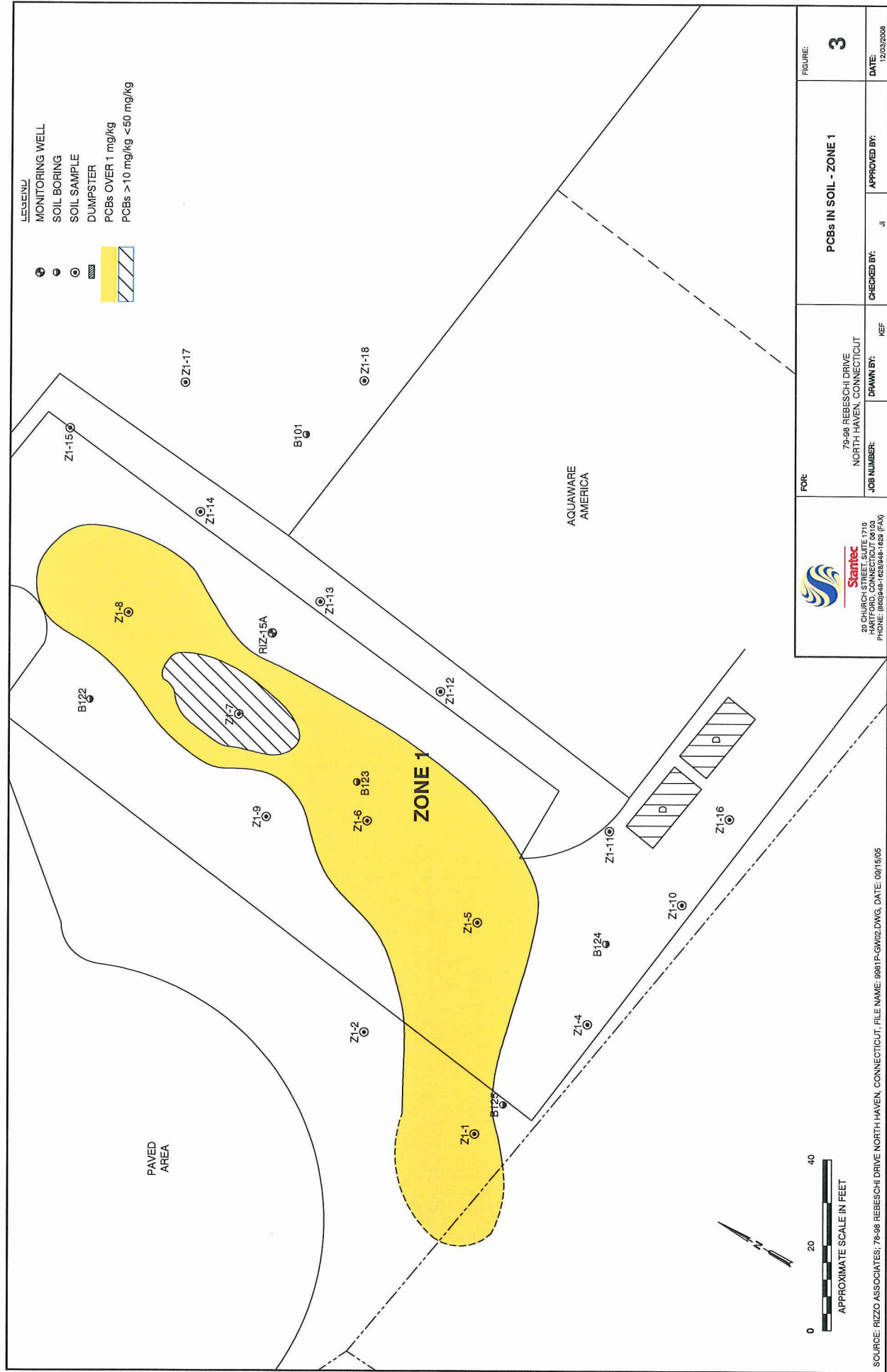
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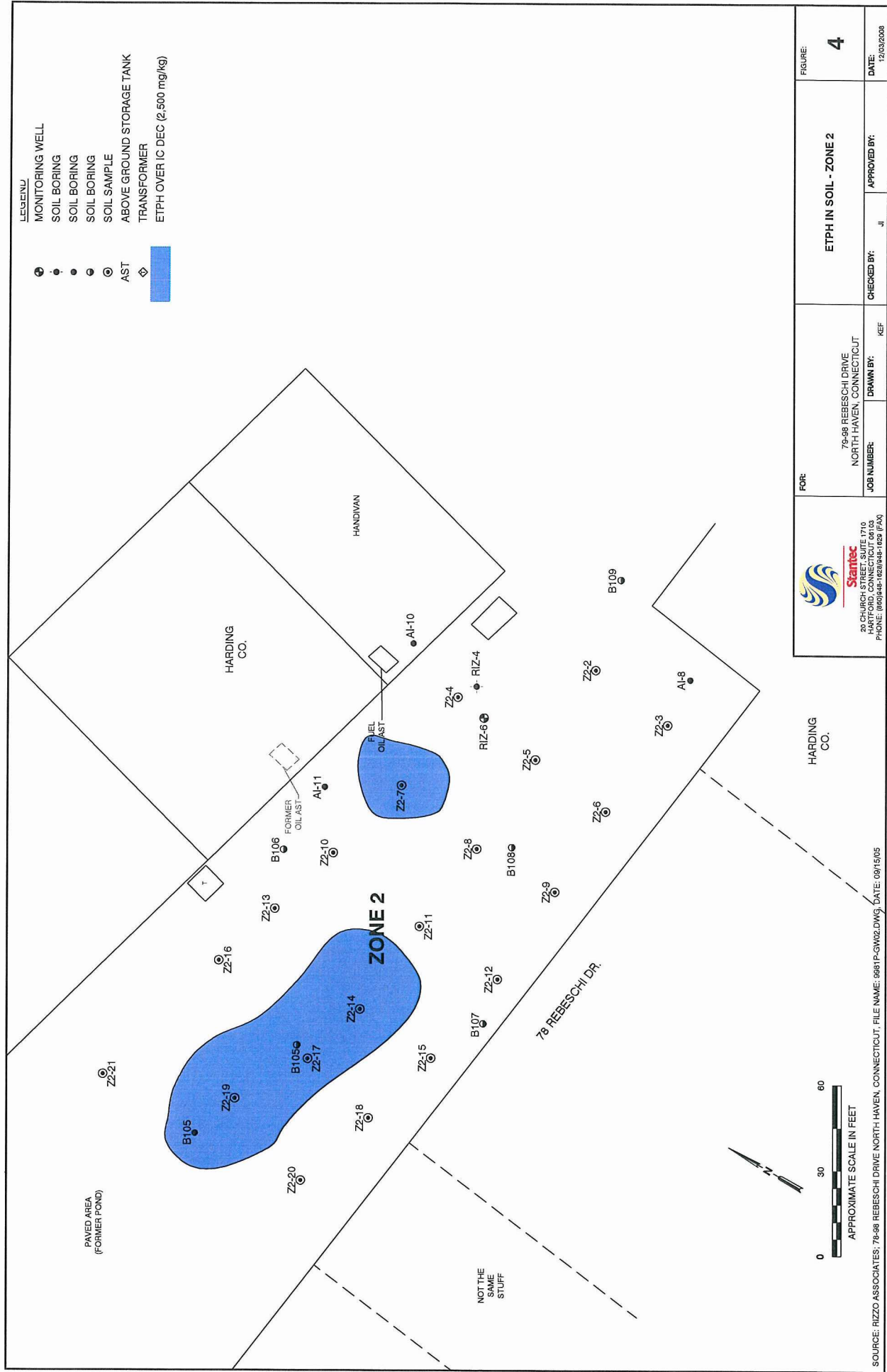


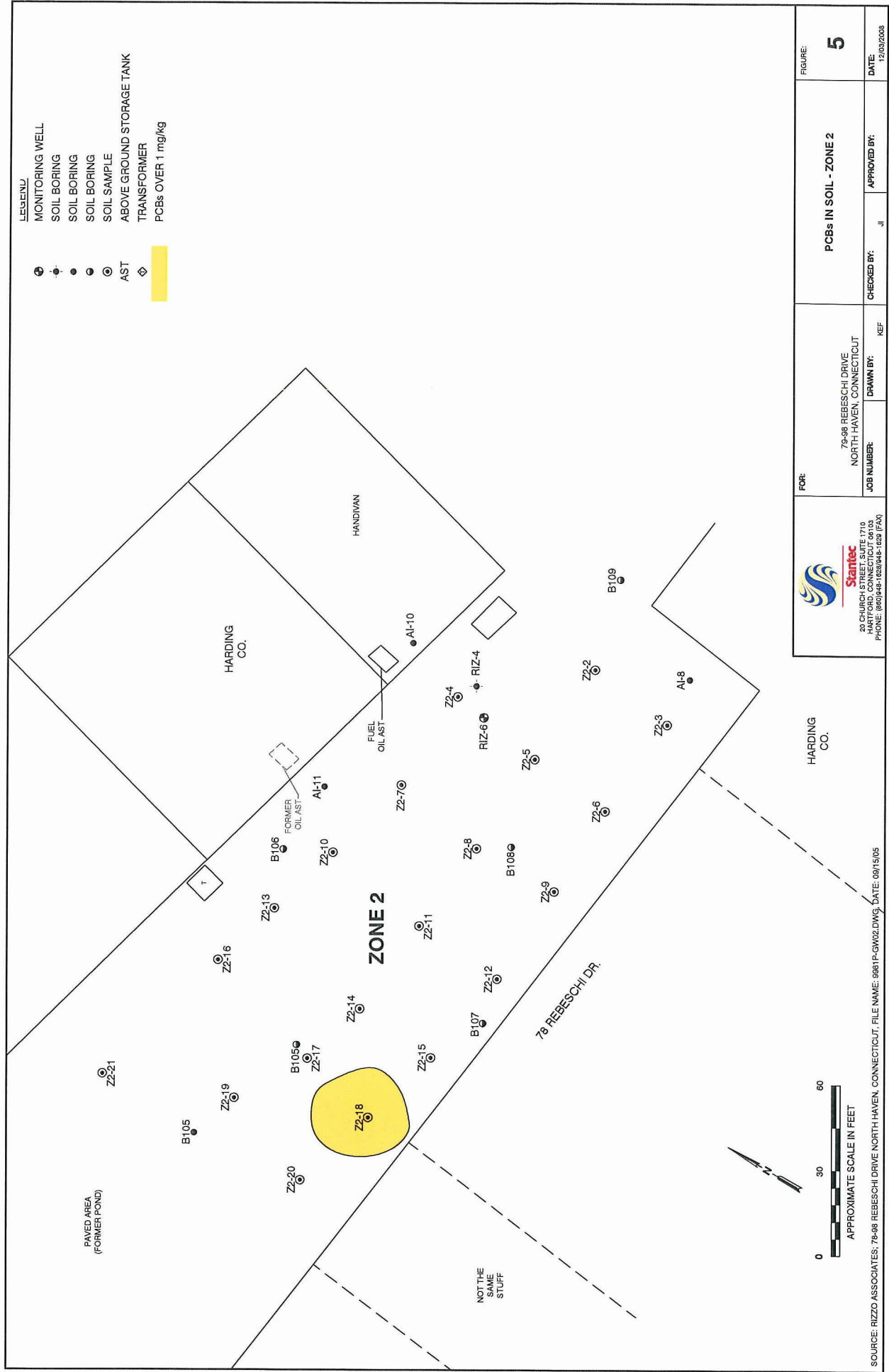
 <p>STARBUCK 145 REBESCHI DRIVE, 2ND FLOOR HARTFORD, CONNECTICUT PHONE: (860) 244-7034/248-7037 (FAX)</p>	<p>FOR:</p> <p>79-98 REBESCHI DRIVE NORTH HAVEN, CONNECTICUT</p>	<p>FIGURE:</p> <p><b>11</b></p>
<p>FILEPATH: CONNECTICUT.OFFICE\REBESCHI.DRIVE, NORTH HAVEN, CT</p>	<p>CHECKED BY: JI</p> <p>APPROVED BY:</p>	<p>DATE: 12/03/2003</p>

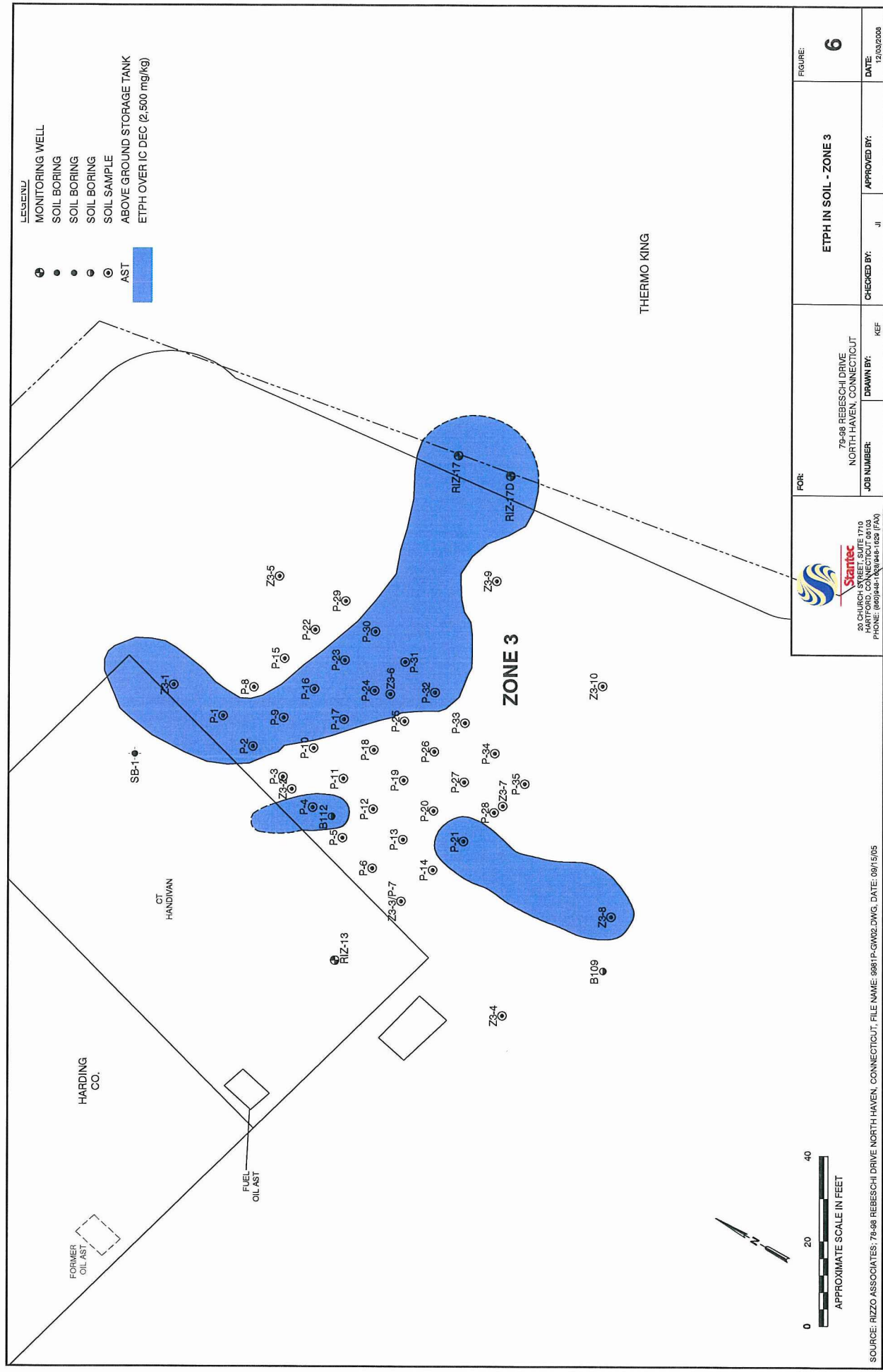


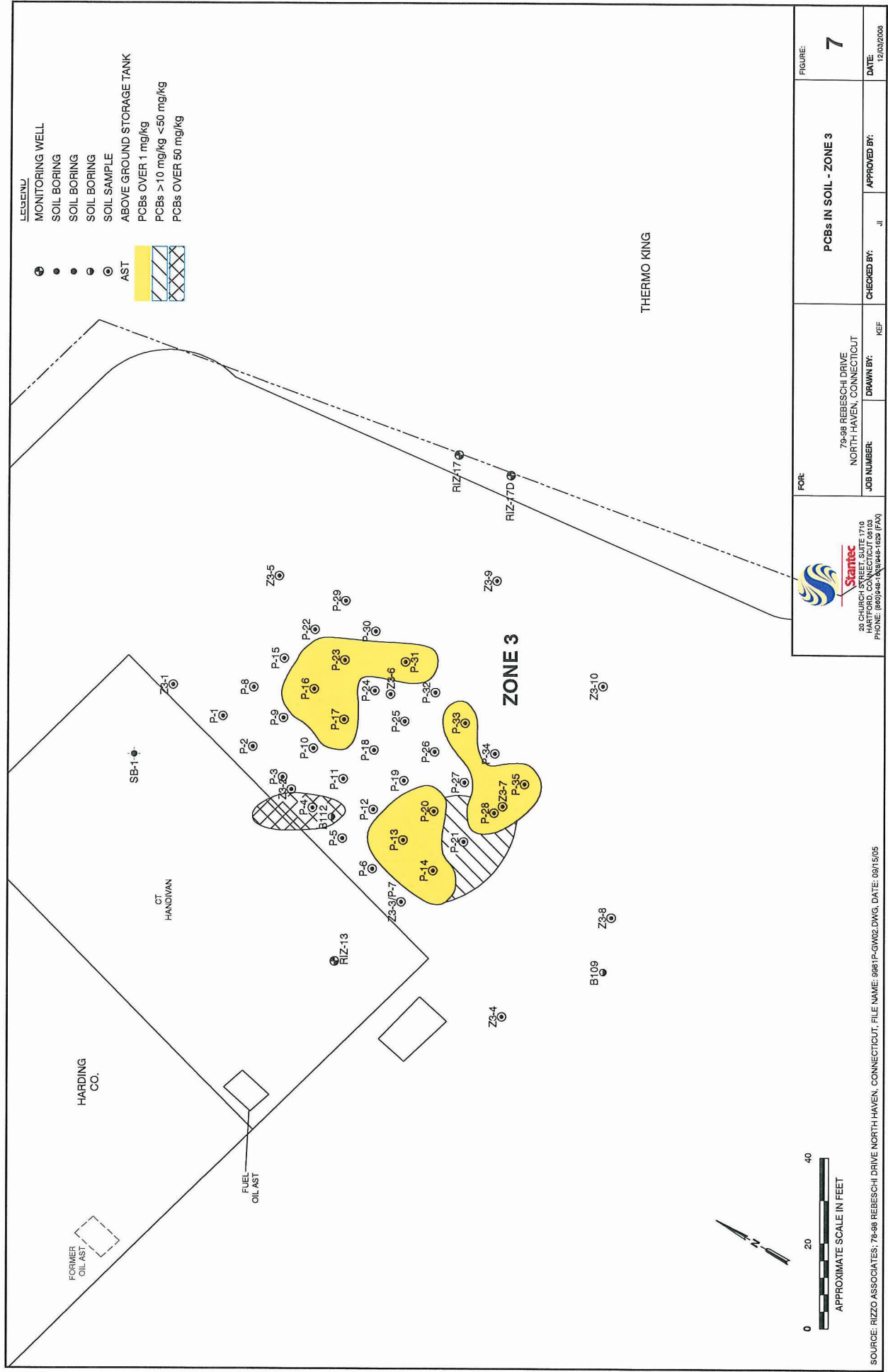




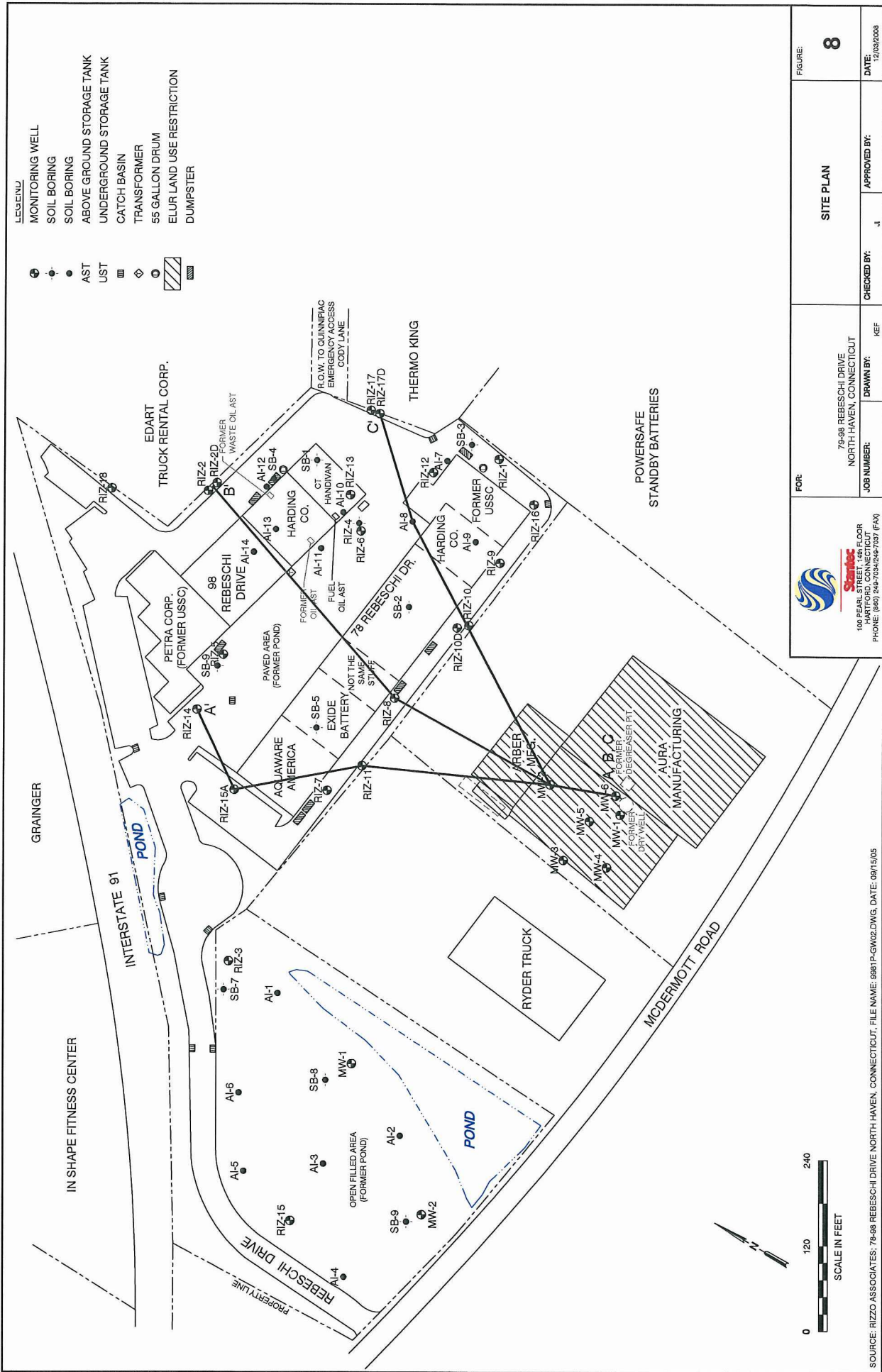




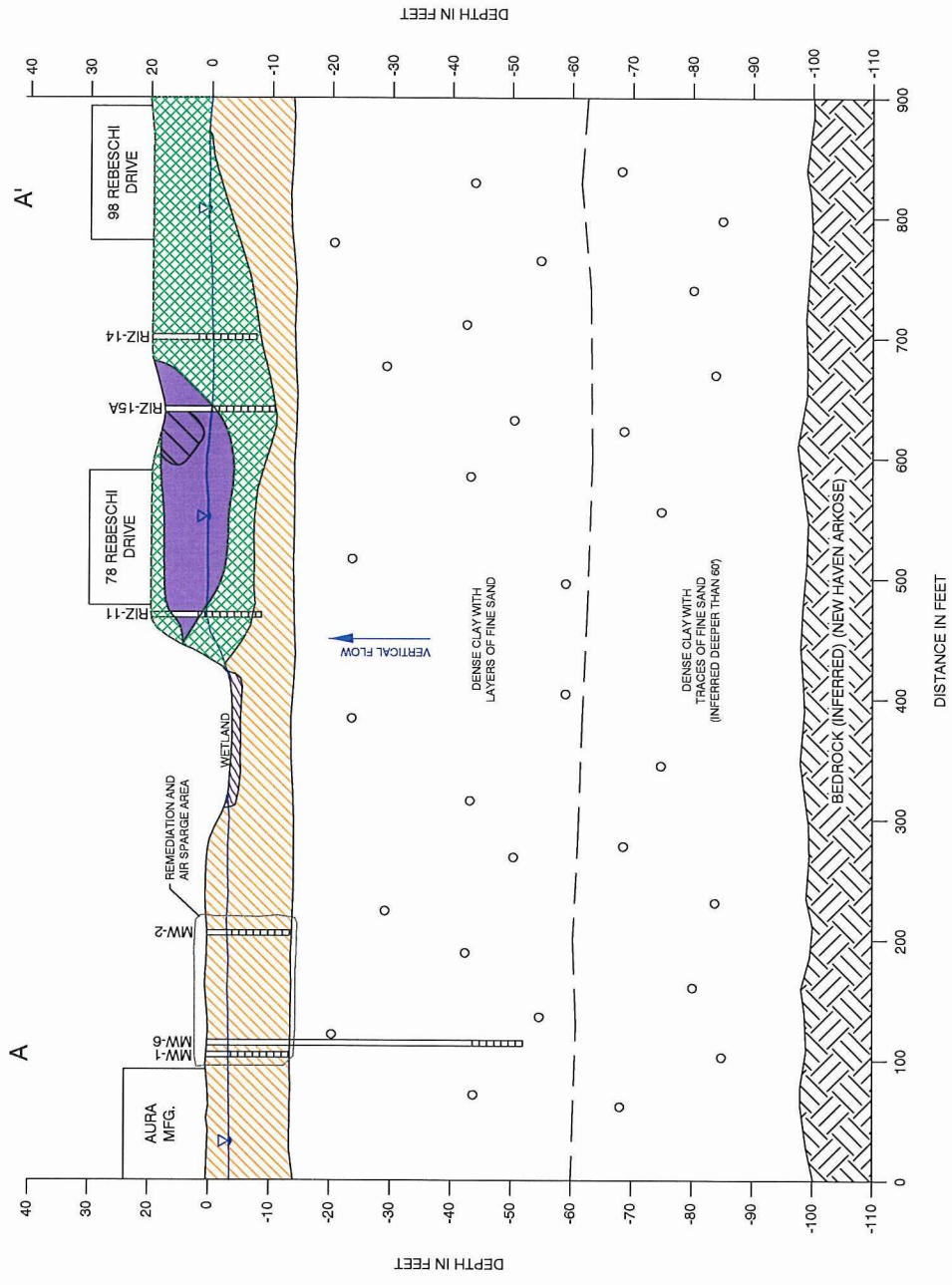




SOURCE: RIZZO ASSOCIATES; 78-98 REBESCHI DRIVE NORTH HAVEN, CONNECTICUT; FILE NAME: 9881P-GW02.DWG; DATE: 09/15/05







- LEGEND**
- MUCK (WETLAND)
  - SAND, SILT AND GRAVEL WITH BRICK, TRASH AND WOOD (FILL)
  - SAND, SILT AND GRAVEL, TRENDING TO CLAY
  - ETPH OVER IC DEC (2,500 mg/kg) AND PCBs OVER 1 mg/kg
  - PCBs > 10 mg/kg <50 mg/kg

<p>100 PEARL STREET, 14th FLOOR NORTH HAVEN, CONNECTICUT 06460 PHONE: (860) 249-7034/(249-7037) FAX</p>		<p>FOR: 79-98 REBESCHI DRIVE NORTH HAVEN, CONNECTICUT</p>		<p>FIGURE: <b>9</b></p>
<p>JOB NUMBER: KEF</p>		<p>DRAWN BY: JI</p>		<p>APPROVED BY:</p>
<p>FILEPATH: CONNECTOUT OFFICE\REBESCHI DRIVE, NORTH HAVEN, CT</p>		<p>CHECKED BY:</p>		<p>DATE: 12/03/2008</p>

Table 1  
Soil Analytical Results  
Site W-10  
71-88 Railroad Drive  
North Haven, Connecticut

Laboratory ID Sample Data Sample Depth	RES DEC	MC DEC	CB PMS	B101 (P-1)		B101 (P-4)		B101 (P-6)		B101 (P-8)		B101 (P-10)		B101 (P-12)		B101 (P-14)		B101 (P-16)		B101 (P-18)		B101 (P-20)		B101 (P-22)		B101 (P-24)		B101 (P-26)		B101 (P-28)		B101 (P-30)		B101 (P-32)		B101 (P-34)		B101 (P-36)		B101 (P-38)		B101 (P-40)		B101 (P-42)		B101 (P-44)		B101 (P-46)		B101 (P-48)		B101 (P-50)		B101 (P-52)		B101 (P-54)		B101 (P-56)		B101 (P-58)		B101 (P-60)		B101 (P-62)		B101 (P-64)		B101 (P-66)		B101 (P-68)		B101 (P-70)		B101 (P-72)		B101 (P-74)		B101 (P-76)		B101 (P-78)		B101 (P-80)		B101 (P-82)		B101 (P-84)		B101 (P-86)		B101 (P-88)		B101 (P-90)		B101 (P-92)		B101 (P-94)		B101 (P-96)		B101 (P-98)		B101 (P-100)		B101 (P-102)		B101 (P-104)		B101 (P-106)		B101 (P-108)		B101 (P-110)		B101 (P-112)		B101 (P-114)		B101 (P-116)		B101 (P-118)		B101 (P-120)		B101 (P-122)		B101 (P-124)		B101 (P-126)		B101 (P-128)		B101 (P-130)		B101 (P-132)		B101 (P-134)		B101 (P-136)		B101 (P-138)		B101 (P-140)		B101 (P-142)		B101 (P-144)		B101 (P-146)		B101 (P-148)		B101 (P-150)		B101 (P-152)		B101 (P-154)		B101 (P-156)		B101 (P-158)		B101 (P-160)		B101 (P-162)		B101 (P-164)		B101 (P-166)		B101 (P-168)		B101 (P-170)		B101 (P-172)		B101 (P-174)		B101 (P-176)		B101 (P-178)		B101 (P-180)		B101 (P-182)		B101 (P-184)		B101 (P-186)		B101 (P-188)		B101 (P-190)		B101 (P-192)		B101 (P-194)		B101 (P-196)		B101 (P-198)		B101 (P-200)		B101 (P-202)		B101 (P-204)		B101 (P-206)		B101 (P-208)		B101 (P-210)		B101 (P-212)		B101 (P-214)		B101 (P-216)		B101 (P-218)		B101 (P-220)		B101 (P-222)		B101 (P-224)		B101 (P-226)		B101 (P-228)		B101 (P-230)		B101 (P-232)		B101 (P-234)		B101 (P-236)		B101 (P-238)		B101 (P-240)		B101 (P-242)		B101 (P-244)		B101 (P-246)		B101 (P-248)		B101 (P-250)		B101 (P-252)		B101 (P-254)		B101 (P-256)		B101 (P-258)		B101 (P-260)		B101 (P-262)		B101 (P-264)		B101 (P-266)		B101 (P-268)		B101 (P-270)		B101 (P-272)		B101 (P-274)		B101 (P-276)		B101 (P-278)		B101 (P-280)		B101 (P-282)		B101 (P-284)		B101 (P-286)		B101 (P-288)		B101 (P-290)		B101 (P-292)		B101 (P-294)		B101 (P-296)		B101 (P-298)		B101 (P-300)		B101 (P-302)		B101 (P-304)		B101 (P-306)		B101 (P-308)		B101 (P-310)		B101 (P-312)		B101 (P-314)		B101 (P-316)		B101 (P-318)		B101 (P-320)		B101 (P-322)		B101 (P-324)		B101 (P-326)		B101 (P-328)		B101 (P-330)		B101 (P-332)		B101 (P-334)		B101 (P-336)		B101 (P-338)		B101 (P-340)		B101 (P-342)		B101 (P-344)		B101 (P-346)		B101 (P-348)		B101 (P-350)		B101 (P-352)		B101 (P-354)		B101 (P-356)		B101 (P-358)		B101 (P-360)		B101 (P-362)		B101 (P-364)		B101 (P-366)		B101 (P-368)		B101 (P-370)		B101 (P-372)		B101 (P-374)		B101 (P-376)		B101 (P-378)		B101 (P-380)		B101 (P-382)		B101 (P-384)		B101 (P-386)		B101 (P-388)		B101 (P-390)		B101 (P-392)		B101 (P-394)		B101 (P-396)		B101 (P-398)		B101 (P-400)		B101 (P-402)		B101 (P-404)		B101 (P-406)		B101 (P-408)		B101 (P-410)		B101 (P-412)		B101 (P-414)		B101 (P-416)		B101 (P-418)		B101 (P-420)		B101 (P-422)		B101 (P-424)		B101 (P-426)		B101 (P-428)		B101 (P-430)		B101 (P-432)		B101 (P-434)		B101 (P-436)		B101 (P-438)		B101 (P-440)		B101 (P-442)		B101 (P-444)		B101 (P-446)		B101 (P-448)		B101 (P-450)		B101 (P-452)		B101 (P-454)		B101 (P-456)		B101 (P-458)		B101 (P-460)		B101 (P-462)		B101 (P-464)		B101 (P-466)		B101 (P-468)		B101 (P-470)		B101 (P-472)		B101 (P-474)		B101 (P-476)		B101 (P-478)		B101 (P-480)		B101 (P-482)		B101 (P-484)		B101 (P-486)		B101 (P-488)		B101 (P-490)		B101 (P-492)		B101 (P-494)		B101 (P-496)		B101 (P-498)		B101 (P-500)		B101 (P-502)		B101 (P-504)		B101 (P-506)		B101 (P-508)		B101 (P-510)		B101 (P-512)		B101 (P-514)		B101 (P-516)		B101 (P-518)		B101 (P-520)		B101 (P-522)		B101 (P-524)		B101 (P-526)		B101 (P-528)		B101 (P-530)		B101 (P-532)		B101 (P-534)		B101 (P-536)		B101 (P-538)		B101 (P-540)		B101 (P-542)		B101 (P-544)		B101 (P-546)		B101 (P-548)		B101 (P-550)		B101 (P-552)		B101 (P-554)		B101 (P-556)		B101 (P-558)		B101 (P-560)		B101 (P-562)		B101 (P-564)		B101 (P-566)		B101 (P-568)		B101 (P-570)		B101 (P-572)		B101 (P-574)		B101 (P-576)		B101 (P-578)		B101 (P-580)		B101 (P-582)		B101 (P-584)		B101 (P-586)		B101 (P-588)		B101 (P-590)		B101 (P-592)		B101 (P-594)		B101 (P-596)		B101 (P-598)		B101 (P-600)		B101 (P-602)		B101 (P-604)		B101 (P-606)		B101 (P-608)		B101 (P-610)		B101 (P-612)		B101 (P-614)		B101 (P-616)		B101 (P-618)		B101 (P-620)		B101 (P-622)		B101 (P-624)		B101 (P-626)		B101 (P-628)		B101 (P-630)		B101 (P-632)		B101 (P-634)		B101 (P-636)		B101 (P-638)		B101 (P-640)		B101 (P-642)		B101 (P-644)		B101 (P-646)		B101 (P-648)		B101 (P-650)		B101 (P-652)		B101 (P-654)		B101 (P-656)		B101 (P-658)		B101 (P-660)		B101 (P-662)		B101 (P-664)		B101 (P-666)		B101 (P-668)		B101 (P-670)		B101 (P-672)		B101 (P-674)		B101 (P-676)		B101 (P-678)		B101 (P-680)		B101 (P-682)		B101 (P-684)		B101 (P-686)		B101 (P-688)		B101 (P-690)		B101 (P-692)		B101 (P-694)		B101 (P-696)		B101 (P-698)		B101 (P-700)		B101 (P-702)		B101 (P-704)		B101 (P-706)		B101 (P-708)		B101 (P-710)		B101 (P-712)		B101 (P-714)		B101 (P-716)		B101 (P-718)		B101 (P-720)		B101 (P-722)		B101 (P-724)		B101 (P-726)		B101 (P-728)		B101 (P-730)		B101 (P-732)		B101 (P-734)		B101 (P-736)		B101 (P-738)		B101 (P-740)		B101 (P-742)		B10
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Table 1  
Site Analytical Results  
Site Wide  
75-63 Rubenck Drive  
North Haven, Conn 06455

[illegible]

**Notes:**  
 ug/g - micrograms per kilogram ug/g - micrograms per kilogram  
 NA - Not analyzed NS - Not Specified  
 RCB DEC - Residential Direct Exposure Criteria  
 IG DEC - Industrial/Commercial Direct Exposure Criteria  
 CB PLOC - Class CB Pesticide Mobility Criteria  
 Bold indicate an exceedance of one or more criteria.







#### Additional Characterization Soil Analysis Results

[illegible]

mg/kg - milligrams per kilogram    mg/kg - milligrams per kilogram  
NA - Not analyzed  
NE - Not Established Criteria or not applicable  
RDS DEC - Residential Direct Exposure Criteria  
IC DEC - Industrial/Commercial Direct Exposure Criteria  
\* - Analyzed Value  
Oval indicates an endorsement of one or more criteria.

Additional Characteristics and Analytical Results  
72-63 Rutland Drive  
North Haven, Connecticut

Barium LTL Laboratory Ltd.	Sample Date	Sample Depth	Sample Type	GC PMW	MEG DEG	IC DEG	GC/MS C15-17-19-21 C18-20-22-24 C23-25-27-29 C28-30-32-34 C33-35-37-39 C40-42-44-46 C47-49-51-53 C54-56-58-60 C61-63-65-67 C68-70-72-74 C75-77-79-81 C82-84-86-88 C89-91-93-95 C96-98-100-102 C103-105-107-109 C110-112-114-116 C117-119-121-123 C124-126-128-130 C131-133-135-137 C140-142-144-146 C147-149-151-153 C154-156-158-160 C161-163-165-167 C170-172-174-176 C177-179-181-183 C184-186-188-190 C191-193-195-197 C200-202-204-206 C207-209-211-213 C216-218-220-222 C223-225-227-229 C230-232-234-236 C237-239-241-243 C244-246-248-250 C251-253-255-257 C260-262-264-266 C267-269-271-273 C274-276-278-280 C281-283-285-287 C290-292-294-296 C297-299-301-303 C304-306-308-310 C311-313-315-317 C318-320-322-324 C321-323-325-327 C328-330-332-334 C331-333-335-337 C338-340-342-344 C341-343-345-347 C348-350-352-354 C351-353-355-357 C358-360-362-364 C361-363-365-367 C368-370-372-374 C371-373-375-377 C378-380-382-384 C381-383-385-387 C388-390-392-394 C391-393-395-397 C398-400-402-404 C401-403-405-407 C408-410-412-414 C411-413-415-417 C418-420-422-424 C421-423-425-427 C428-430-432-434 C431-433-435-437 C438-440-442-444 C441-443-445-447 C448-450-452-454 C451-453-455-457 C458-460-462-464 C461-463-465-467 C468-470-472-474 C471-473-475-477 C478-480-482-484 C481-483-485-487 C488-490-492-494 C491-493-495-497 C498-500-502-504 C501-503-505-507 C508-510-512-514 C511-513-515-517 C518-520-522-524 C521-523-525-527 C528-530-532-534 C531-533-535-537 C538-540-542-544 C541-543-545-547 C548-550-552-554 C551-553-555-557 C558-560-562-564 C561-563-565-567 C568-570-572-574 C571-573-575-577 C578-580-582-584 C581-583-585-587 C588-590-592-594 C591-593-595-597 C598-600-602-604 C601-603-605-607 C608-610-612-614 C611-613-615-617 C618-620-622-624 C621-623-625-627 C628-630-632-634 C631-633-635-637 C638-640-642-644 C641-643-645-647 C648-650-652-654 C651-653-655-657 C658-660-662-664 C661-663-665-667 C668-670-672-674 C671-673-675-677 C678-680-682-684 C681-683-685-687 C688-690-692-694 C691-693-695-697 C698-700-702-704 C701-703-705-707 C708-710-712-714 C711-713-715-717 C718-720-722-724 C721-723-725-727 C728-730-732-734 C731-733-735-737 C738-740-742-744 C741-743-745-747 C748-750-752-754 C751-753-755-757 C758-760-762-764 C761-763-765-767 C768-770-772-774 C771-773-775-777 C778-780-782-784 C781-783-785-787 C788-790-792-794 C791-793-795-797 C798-800-802-804 C801-803-805-807 C808-810-812-814 C811-813-815-817 C818-820-822-824 C821-823-825-827 C828-830-832-834 C831-833-835-837 C838-840-842-844 C841-843-845-847 C848-850-852-854 C851-853-855-857 C858-860-862-864 C861-863-865-867 C868-870-872-874 C871-873-875-877 C878-880-882-884 C881-883-885-887 C888-890-892-894 C891-893-895-897 C898-900-902-904 C901-903-905-907 C908-910-912-914 C911-913-915-917 C918-920-922-924 C921-923-925-927 C928-930-932-934 C931-933-935-937 C938-940-942-944 C941-943-945-947 C948-950-952-954 C951-953-955-957 C958-960-962-964 C961-963-965-967 C968-970-972-974 C971-973-975-977 C978-980-982-984 C981-983-985-987 C988-990-992-994 C991-993-995-997 C998-1000-1002-1004 C1001-1003-1005-1007 C1008-1010-1012-1014 C1011-1013-1015-1017 C1018-1020-1022-1024 C1021-1023-1025-1027 C1028-1030-1032-1034 C1031-1033-1035-1037 C1038-1040-1042-1044 C1041-1043-1045-1047 C1048-1050-1052-1054 C1051-1053-1055-1057 C1058-1060-1062-1064 C1061-1063-1065-1067 C1068-1070-1072-1074 C1071-1073-1075-1077 C1078-1080-1082-1084 C1081-1083-1085-1087 C1088-1090-1092-1094 C1091-1093-1095-1097 C1098-1100-1102-1104 C1101-1103-1105-1107 C1108-1110-1112-1114 C1111-1113-1115-1117 C1118-1120-1122-1124 C1121-1123-1125-1127 C1128-1130-1132-1134 C1131-1133-1135-1137 C1138-1140-1142-1144 C1141-1143-1145-1147 C1148-1150-1152-1154 C1151-1153-1155-1157 C1158-1160-1162-1164 C1161-1163-1165-1167 C1168-1170-1172-1174 C1171-1173-1175-1177 C1178-1180-1182-1184 C1181-1183-1185-1187 C1188-1190-1
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mg/kg - micrograms per kilogram    mg/kg - micrograms per kilogram  
 NA - Not analyzed  
 NE - Not Established Criteria or not applicable  
 RES DEC - Residential Direct Exposure Criteria  
 IC DEC - Industrial Commercial Direct Exposure Criteria  
 \* - Re-analyzed Value  
 Bold indicates an exceedance of one or more criteria.

Table 3  
 Zone 2  
 Additional Characterization Soil Analytical Results  
 75-83 Railroad Drive  
 North Haven, Connecticut

Sample Depth	OS PAC	RES DEC	IC DEC	23-PE1 EPA 8160-10 EPA 8210
0-10 cm (0-4 in)	18	1,000	1,000	NA
10-20 cm (4-8 in)	12	474	1,000	NA
20-30 cm (8-12 in)	24	1,000	1,000	NA
30-40 cm (12-16 in)	28	1,000	1,000	NA
40-50 cm (16-20 in)	34	1,000	1,000	NA
50-60 cm (20-24 in)	42	1,000	1,000	NA
60-70 cm (24-28 in)	42	1,000	1,000	NA
70-80 cm (28-32 in)	44	1,000	1,000	NA
80-90 cm (32-36 in)	44	1,000	1,000	NA
90-100 cm (36-40 in)	40	1,000	1,000	NA
100-110 cm (40-44 in)	1	1	1.8	NA
110-120 cm (44-48 in)	1	1	1.8	NA
120-130 cm (48-52 in)	1	1	1.8	NA
130-140 cm (52-56 in)	NA	NA	NA	11.0*
140-150 cm (56-60 in)	NA	NA	NA	<0.110*
150-160 cm (60-64 in)	NA	NA	NA	<0.110*
160-170 cm (64-68 in)	NA	NA	NA	<0.110*
170-180 cm (68-72 in)	NA	NA	NA	<0.110*
180-190 cm (72-76 in)	NA	NA	NA	<0.110*
190-200 cm (76-80 in)	NA	NA	NA	<0.110*
200-210 cm (80-84 in)	NA	NA	NA	<0.110*
210-220 cm (84-88 in)	NA	NA	NA	<0.110*
220-230 cm (88-92 in)	NA	NA	NA	<0.110*
230-240 cm (92-96 in)	NA	NA	NA	<0.110*
240-250 cm (96-100 in)	NA	NA	NA	<0.110*
250-260 cm (100-104 in)	NA	NA	NA	<0.110*
260-270 cm (104-108 in)	NA	NA	NA	<0.110*
270-280 cm (108-112 in)	NA	NA	NA	<0.110*
280-290 cm (112-116 in)	NA	NA	NA	<0.110*
290-300 cm (116-120 in)	NA	NA	NA	<0.110*
300-310 cm (120-124 in)	NA	NA	NA	<0.110*
310-320 cm (124-128 in)	NA	NA	NA	<0.110*
320-330 cm (128-132 in)	NA	NA	NA	<0.110*
330-340 cm (132-136 in)	NA	NA	NA	<0.110*
340-350 cm (136-140 in)	NA	NA	NA	<0.110*
350-360 cm (140-144 in)	NA	NA	NA	<0.110*
360-370 cm (144-148 in)	NA	NA	NA	<0.110*
370-380 cm (148-152 in)	NA	NA	NA	<0.110*
380-390 cm (152-156 in)	NA	NA	NA	<0.110*
390-400 cm (156-160 in)	NA	NA	NA	<0.110*
400-410 cm (160-164 in)	NA	NA	NA	<0.110*
410-420 cm (164-168 in)	NA	NA	NA	<0.110*
420-430 cm (168-172 in)	NA	NA	NA	<0.110*
430-440 cm (172-176 in)	NA	NA	NA	<0.110*
440-450 cm (176-180 in)	NA	NA	NA	<0.110*
450-460 cm (180-184 in)	NA	NA	NA	<0.110*
460-470 cm (184-188 in)	NA	NA	NA	<0.110*
470-480 cm (188-192 in)	NA	NA	NA	<0.110*
480-490 cm (192-196 in)	NA	NA	NA	<0.110*
490-500 cm (196-200 in)	NA	NA	NA	<0.110*
500-510 cm (200-204 in)	NA	NA	NA	<0.110*
510-520 cm (204-208 in)	NA	NA	NA	<0.110*
520-530 cm (208-212 in)	NA	NA	NA	<0.110*
530-540 cm (212-216 in)	NA	NA	NA	<0.110*
540-550 cm (216-220 in)	NA	NA	NA	<0.110*
550-560 cm (220-224 in)	NA	NA	NA	<0.110*
560-570 cm (224-228 in)	NA	NA	NA	<0.110*
570-580 cm (228-232 in)	NA	NA	NA	<0.110*
580-590 cm (232-236 in)	NA	NA	NA	<0.110*
590-600 cm (236-240 in)	NA	NA	NA	<0.110*
600-610 cm (240-244 in)	NA	NA	NA	<0.110*
610-620 cm (244-248 in)	NA	NA	NA	<0.110*
620-630 cm (248-252 in)	NA	NA	NA	<0.110*
630-640 cm (252-256 in)	NA	NA	NA	<0.110*
640-650 cm (256-260 in)	NA	NA	NA	<0.110*
650-660 cm (260-264 in)	NA	NA	NA	<0.110*
660-670 cm (264-268 in)	NA	NA	NA	<0.110*
670-680 cm (268-272 in)	NA	NA	NA	<0.110*
680-690 cm (272-276 in)	NA	NA	NA	<0.110*
690-700 cm (276-280 in)	NA	NA	NA	<0.110*
700-710 cm (280-284 in)	NA	NA	NA	<0.110*
710-720 cm (284-288 in)	NA	NA	NA	<0.110*
720-730 cm (288-292 in)	NA	NA	NA	<0.110*
730-740 cm (292-296 in)	NA	NA	NA	<0.110*
740-750 cm (296-300 in)	NA	NA	NA	<0.110*
750-760 cm (300-304 in)	NA	NA	NA	<0.110*
760-770 cm (304-308 in)	NA	NA	NA	<0.110*
770-780 cm (308-312 in)	NA	NA	NA	<0.110*
780-790 cm (312-316 in)	NA	NA	NA	<0.110*
790-800 cm (316-320 in)	NA	NA	NA	<0.110*
800-810 cm (320-324 in)	NA	NA	NA	<0.110*
810-820 cm (324-328 in)	NA	NA	NA	<0.110*
820-830 cm (328-332 in)	NA	NA	NA	<0.110*
830-840 cm (332-336 in)	NA	NA	NA	<0.110*
840-850 cm (336-340 in)	NA	NA	NA	<0.110*
850-860 cm (340-344 in)	NA	NA	NA	<0.110*
860-870 cm (344-348 in)	NA	NA	NA	<0.110*
870-880 cm (348-352 in)	NA	NA	NA	<0.110*
880-890 cm (352-356 in)	NA	NA	NA	<0.110*
890-900 cm (356-360 in)	NA	NA	NA	<0.110*
900-910 cm (360-364 in)	NA	NA	NA	<0.110*
910-920 cm (364-368 in)	NA	NA	NA	<0.110*
920-930 cm (368-372 in)	NA	NA	NA	<0.110*
930-940 cm (372-376 in)	NA	NA	NA	<0.110*
940-950 cm (376-380 in)	NA	NA	NA	<0.110*
950-960 cm (380-384 in)	NA	NA	NA	<0.110*
960-970 cm (384-388 in)	NA	NA	NA	<0.110*
970-980 cm (388-392 in)	NA	NA	NA	<0.110*
980-990 cm (392-396 in)	NA	NA	NA	<0.110*
990-1000 cm (396-400 in)	NA	NA	NA	<0.110*
Estimated Total Petroleum C1 & C2	1,000	1,000	1,000	11.0*

Notes:  
 ug/kg - micrograms per kilogram mg/kg - milligrams per kilogram  
 NA - Not analyzed  
 NA - No Established Criteria is not applicable  
 RES DEC - Residential Direct Exposure Criteria  
 IC DEC - Industrial Commercial Direct Exposure Criteria  
 \* - No analytical value  
 Bold indicates an exceedance of one or more criteria.





Table 4  
Zone 3  
Soil Analytical Results  
75-83 Robinson Drive  
North Haven, Connecticut

[illegible]

Notes:  
µg/m<sup>3</sup> - microgramma per litro; mg/m<sup>3</sup> - milligramma per litro  
N/A - Not analyzed; NE - Not Established  
RCS DEC - Residential Direct Exposure Criteria  
IC DEC - Industrial/Commercial Direct Exposure Criteria  
Bold indicates no exceedance of one or more criteria.  
\* - Re-analyzed Value



Table 4  
 Data 3  
 Roll Analytical Results  
 7841 Rossmore Drive  
 North Haven, Connecticut

Sample ID	Sample Date	Sample Depth	CB PBC	REB DEC	IC DEC	P-1 (3-4-1)	P-1 (10-11)	P-1 (15-16)	P-1 (21-22)	P-1 (27-28)	P-1 (33-34)	P-1 (39-40)	P-1 (45-46)	P-1 (51-52)	P-1 (57-58)	P-1 (63-64)	P-1 (69-70)	P-1 (75-76)	P-1 (81-82)	P-1 (87-88)	P-1 (93-94)	P-1 (99-100)	P-1 (105-106)	P-1 (111-112)	P-1 (117-118)	P-1 (123-124)	P-1 (129-130)	P-1 (135-136)	P-1 (141-142)	P-1 (147-148)	P-1 (153-154)	P-1 (159-160)	P-1 (165-166)	P-1 (171-172)	P-1 (177-178)	P-1 (183-184)	P-1 (189-190)	P-1 (195-196)	P-1 (201-202)	P-1 (207-208)	P-1 (213-214)	P-1 (219-220)	P-1 (225-226)	P-1 (231-232)	P-1 (237-238)	P-1 (243-244)	P-1 (249-250)	P-1 (255-256)	P-1 (261-262)	P-1 (267-268)	P-1 (273-274)	P-1 (279-280)	P-1 (285-286)	P-1 (291-292)	P-1 (297-298)	P-1 (303-304)	P-1 (309-310)	P-1 (315-316)	P-1 (321-322)	P-1 (327-328)	P-1 (333-334)	P-1 (339-340)	P-1 (345-346)	P-1 (351-352)	P-1 (357-358)	P-1 (363-364)	P-1 (369-370)	P-1 (375-376)	P-1 (381-382)	P-1 (387-388)	P-1 (393-394)	P-1 (399-400)	P-1 (405-406)	P-1 (411-412)	P-1 (417-418)	P-1 (423-424)	P-1 (429-430)	P-1 (435-436)	P-1 (441-442)	P-1 (447-448)	P-1 (453-454)	P-1 (459-460)	P-1 (465-466)	P-1 (471-472)	P-1 (477-478)	P-1 (483-484)	P-1 (489-490)	P-1 (495-496)	P-1 (501-502)	P-1 (507-508)	P-1 (513-514)	P-1 (519-520)	P-1 (525-526)	P-1 (531-532)	P-1 (537-538)	P-1 (543-544)	P-1 (549-550)	P-1 (555-556)	P-1 (561-562)	P-1 (567-568)	P-1 (573-574)	P-1 (579-580)	P-1 (585-586)	P-1 (591-592)	P-1 (597-598)	P-1 (603-604)	P-1 (609-610)	P-1 (615-616)	P-1 (621-622)	P-1 (627-628)	P-1 (633-634)	P-1 (639-640)	P-1 (645-646)	P-1 (651-652)	P-1 (657-658)	P-1 (663-664)	P-1 (669-670)	P-1 (675-676)	P-1 (681-682)	P-1 (687-688)	P-1 (693-694)	P-1 (699-700)	P-1 (705-706)	P-1 (711-712)	P-1 (717-718)	P-1 (723-724)	P-1 (729-730)	P-1 (735-736)	P-1 (741-742)	P-1 (747-748)	P-1 (753-754)	P-1 (759-760)	P-1 (765-766)	P-1 (771-772)	P-1 (777-778)	P-1 (783-784)	P-1 (789-790)	P-1 (795-796)	P-1 (801-802)	P-1 (807-808)	P-1 (813-814)	P-1 (819-820)	P-1 (825-826)	P-1 (831-832)	P-1 (837-838)	P-1 (843-844)	P-1 (849-850)	P-1 (855-856)	P-1 (861-862)	P-1 (867-868)	P-1 (873-874)	P-1 (879-880)	P-1 (885-886)	P-1 (891-892)	P-1 (897-898)	P-1 (903-904)	P-1 (909-910)	P-1 (915-916)	P-1 (921-922)	P-1 (927-928)	P-1 (933-934)	P-1 (939-940)	P-1 (945-946)	P-1 (951-952)	P-1 (957-958)	P-1 (963-964)	P-1 (969-970)	P-1 (975-976)	P-1 (981-982)	P-1 (987-988)	P-1 (993-994)	P-1 (999-1000)	P-1 (1005-1006)	P-1 (1011-1012)	P-1 (1017-1018)	P-1 (1023-1024)	P-1 (1029-1030)	P-1 (1035-1036)	P-1 (1041-1042)	P-1 (1047-1048)	P-1 (1053-1054)	P-1 (1059-1060)	P-1 (1065-1066)	P-1 (1071-1072)	P-1 (1077-1078)	P-1 (1083-1084)	P-1 (1089-1090)	P-1 (1095-1096)	P-1 (1101-1102)	P-1 (1107-1108)	P-1 (1113-1114)	P-1 (1119-1120)	P-1 (1125-1126)	P-1 (1131-1132)	P-1 (1137-1138)	P-1 (1143-1144)	P-1 (1149-1150)	P-1 (1155-1156)	P-1 (1161-1162)	P-1 (1167-1168)	P-1 (1173-1174)	P-1 (1179-1180)	P-1 (1185-1186)	P-1 (1191-1192)	P-1 (1197-1198)	P-1 (1203-1204)	P-1 (1209-1210)	P-1 (1215-1216)	P-1 (1221-1222)	P-1 (1227-1228)	P-1 (1233-1234)	P-1 (1239-1240)	P-1 (1245-1246)	P-1 (1251-1252)	P-1 (1257-1258)	P-1 (1263-1264)	P-1 (1269-1270)	P-1 (1275-1276)	P-1 (1281-1282)	P-1 (1287-1288)	P-1 (1293-1294)	P-1 (1299-1300)	P-1 (1305-1306)	P-1 (1311-1312)	P-1 (1317-1318)	P-1 (1323-1324)	P-1 (1329-1330)	P-1 (1335-1336)	P-1 (1341-1342)	P-1 (1347-1348)	P-1 (1353-1354)	P-1 (1359-1360)	P-1 (1365-1366)	P-1 (1371-1372)	P-1 (1377-1378)	P-1 (1383-1384)	P-1 (1389-1390)	P-1 (1395-1396)	P-1 (1401-1402)	P-1 (1407-1408)	P-1 (1413-1414)	P-1 (1419-1420)	P-1 (1425-1426)	P-1 (1431-1432)	P-1 (1437-1438)	P-1 (1443-1444)	P-1 (1449-1450)	P-1 (1455-1456)	P-1 (1461-1462)	P-1 (1467-1468)	P-1 (1473-1474)	P-1 (1479-1480)	P-1 (1485-1486)	P-1 (1491-1492)	P-1 (1497-1498)	P-1 (1503-1504)	P-1 (1509-1510)	P-1 (1515-1516)	P-1 (1521-1522)	P-1 (1527-1528)	P-1 (1533-1534)	P-1 (1539-1540)	P-1 (1545-1546)	P-1 (1551-1552)	P-1 (1557-1558)	P-1 (1563-1564)	P-1 (1569-1570)	P-1 (1575-1576)	P-1 (1581-1582)	P-1 (1587-1588)	P-1 (1593-1594)	P-1 (1599-1600)	P-1 (1605-1606)	P-1 (1611-1612)	P-1 (1617-1618)	P-1 (1623-1624)	P-1 (1629-1630)	P-1 (1635-1636)	P-1 (1641-1642)	P-1 (1647-1648)	P-1 (1653-1654)	P-1 (1659-1660)	P-1 (1665-1666)	P-1 (1671-1672)	P-1 (1677-1678)	P-1 (1683-1684)	P-1 (1689-1690)	P-1 (1695-1696)	P-1 (1701-1702)	P-1 (1707-1708)	P-1 (1713-1714)	P-1 (1719-1720)	P-1 (1725-1726)	P-1 (1731-1732)	P-1 (1737-1738)	P-1 (1743-1744)	P-1 (1749-1750)	P-1 (1755-1756)	P-1 (1761-1762)	P-1 (1767-1768)	P-1 (1773-1774)	P-1 (1779-1780)	P-1 (1785-1786)	P-1 (1791-1792)	P-1 (1797-1798)	P-1 (1803-1804)	P-1 (1809-1810)	P-1 (1815-1816)	P-1 (1821-1822)	P-1 (1827-1828)	P-1 (1833-1834)	P-1 (1839-1840)	P-1 (1845-1846)	P-1 (1851-1852)	P-1 (1857-1858)	P-1 (1863-1864)	P-1 (1869-1870)	P-1 (1875-1876)	P-1 (1881-1882)	P-1 (1887-1888)	P-1 (1893-1894)	P-1 (1899-1900)	P-1 (1905-1906)	P-1 (1911-1912)	P-1 (1917-1918)	P-1 (1923-1924)	P-1 (1929-1930)	P-1 (1935-1936)	P-1 (1941-1942)	P-1 (1947-1948)	P-1 (1953-1954)	P-1 (1959-1960)	P-1 (1965-1966)	P-1 (1971-1972)	P-1 (1977-1978)	P-1 (1983-1984)	P-1 (1989-1990)	P-1 (1995-1996)	P-1 (2001-2002)	P-1 (2007-2008)	P-1 (2013-2014)	P-1 (2019-2020)	P-1 (2025-2026)	P-1 (2031-2032)	P-1 (2037-2038)	P-1 (2043-2044)	P-1 (2049-2050)	P-1 (2055-2056)	P-1 (2061-2062)	P-1 (2067-2068)	P-1 (2073-2074)	P-1 (2079-2080)	P-1 (2085-2086)	P-1 (2091-2092)	P-1 (2097-2098)	P-1 (2103-2104)	P-1 (2109-2110)	P-1 (2115-2116)	P-1 (2121-2122)	P-1 (2127-2128)	P-1 (2133-2134)	P-1 (2139-2140)	P-1 (2145-2146)	P-1 (2151-2152)	P-1 (2157-2158)	P-1 (2163-2164)	P-1 (2169-2170)	P-1 (2175-2176)	P-1 (2181-2182)	P-1 (2187-2188)	P-1 (2193-2194)	P-1 (2199-2200)	P-1 (2205-2206)	P-1 (2211-2212)	P-1 (2217-2218)	P-1 (2223-2224)	P-1 (2229-2230)	P-1 (2235-2236)	P-1 (2241-2242)	P-1 (2247-2248)	P-1 (2253-2254)	P-1 (2259-2260)	P-1 (2265-2266)	P-1 (2271-2272)	P-1 (2277-2278)	P-1 (2283-2284)	P-1 (2289-2290)	P-1 (2295-2296)	P-1 (2301-2302)	P-1 (2307-2308)	P-1 (2313-2314)	P-1 (2319-2320)	P-1 (2325-2326)	P-1 (2331-2332)	P-1 (2337-2338)	P-1 (2343-2344)	P-1 (2349-2350)	P-1 (2355-2356)	P-1 (2361-2362)	P-1 (2367-2368)	P-1 (2373-2374)	P-1 (2379-2380)	P-1 (2385-2386)	P-1 (2391-2392)	P-1 (2397-2398)	P-1 (2403-2404)	P-1 (2409-2410)	P-1 (2415-2416)	P-1 (2421-2422)	P-1 (2427-2428)	P-1 (2433-2434)	P-1 (2439-2440)	P-1 (2445-2446)	P-1 (2451-2452)	P-1 (2457-2458)	P-1 (2463-2464)	P-1 (2469-2470)	P-1 (2475-2476)	P-1 (2481-2482)	P-1 (2487-2488)	P-1 (2493-2494)	P-1 (2499-2500)	P-1 (2505-2506)	P-1 (2511-2512)	P-1 (2517-2518)	P-1 (2523-2524)	P-1 (2529-2530)	P-1 (2535-2536)	P-1 (2541-2542)	P-1 (2547-2548)	P-1 (2553-2554)	P-1 (2559-2560)	P-1 (2565-2566)	P-1 (2571-2572)	P-1 (2577-2578)	P-1 (2583-2584)	P-1 (2589-2590)	P-1 (2595-2596)	P-1 (2601-2602)	P-1 (2607-2608)	P-1 (2613-2614)	P-1 (2619-2620)	P-1 (2625-2626)	P-1 (2631-2632)	P-1 (2637-2638)	P-1 (2643-2644)	P-1 (2649-2650)	P-1 (2655-2656)	P-1 (2661-2662)	P-1 (2667-2668)	P-1 (2673-2674)	P-1 (2679-2680)	P-1 (2685-2686)	P-1 (2691-2692)	P-1 (2697-2698)	P-1 (2703-2704)	P-1 (2709-2710)	P-1 (2715-2716)	P-1 (2721-2722)	P-1 (2727-2728)	P-1 (2733-2734)	P-1 (2739-2740)	P-1 (2745-2746)	P-1 (2751-2752)	P-1 (2757-2758)	P-1 (2763-2764)	P-1 (2769-2770)	P-1 (2775-2776)	P-1 (2781-2782)	P-1 (2787-2788)	P-1 (2793-2794)	P-1 (2799-2800)	P-1 (2805-2806)	P-1 (2811-2812)	P-1 (2817-2818)	P-1 (2823-2824)	P-1 (2829-2830)	P-1 (2835-2836)	P-1 (2841-2842)	P-1 (2847-2848)	P-1 (2853-2854)	P-1 (2859-2860)	P-1 (2865-2866)	P-1 (2871-2872)	P-1 (2877-2878)	P-1 (2883-2884)	P-1 (2889-2890)	P-1 (2895-2896)	P-1 (2901-2902)	P-1 (2907-2908)	P-1 (2913-2914)	P-1 (2919-2920)	P-1 (2925-2926)	P-1 (2931-2932)	P-1 (2937-2938)	P-1 (2943-2944)	P-1 (2949-2950)	P-1 (2955-2956)	P-1 (2961-2962)	P-1 (2967-2968)	P-1 (2973-2974)	P-1 (2979-2980)	P-1 (2985-2986)	P-1 (2991-2992)	P-1 (2997-2998)	P-1 (3003-3004)	P-1 (3009-3010)	P-1 (3015-3016)	P-1 (3021-3022)	P-1 (3027-3028)	P-1 (3033-3034)	P-1 (3039-3040)	P-1 (3045-3046)	P-1 (3051-3052)	P-1 (3057-3058)	P-1 (3063-3064)	P-1 (3069-3070)	P-1 (3075-3076)	P-1 (3081-3082)	P-1 (3087-3088)	P-1 (3093-3094)	P-1 (3099-3100)	P-1 (3105-3106)	P-1 (3111-3112)	P-1 (3117-3118)	P-1 (3123-3124)	P-1 (3129-3130)	P-1 (3135-3136)	P-1 (3141-3142)	P-1 (3147-3148)	P-1 (3153-3154)	P-1 (3159-3160)	P-1 (3165-3166)	P-1 (3171-3172)	P-1 (3177-3178)	P-1 (3183-3184)	P-1 (3189-3190)	P-1 (3195-3196)	P-1 (3201-3202)	P-1 (3207-3208)	P-1 (3213-3214)	P-1 (3219-3220)	P-1 (3225-3226)	P-1 (3231-3232)	P-1 (3237-3238)	P-1 (3243-3244)	P-1 (3249-3250)	P-1 (3255-3256)	P-1 (3261-3262)	P-1 (3267-3268)	P-1 (3273-3274)	P-1 (3279-3280)	P-1 (3285-3286)	P-1 (3291-3292)	P-1 (3297-3298)	P-1 (3303-3304)	P-1 (3309-3310)	P-1 (3315-3316)	P-1 (3321-3322)	P-1 (3327-3328)	P-1 (3333-3334)	P-1 (3339-3340)	P-1 (3345-3346)	P-1 (3351-3352)	P-1 (3357-3358)	P-1 (3363-3364)	P-1 (3369-3370)	P-1 (3375-3376)	P-1 (3381-3382)	P-1 (3387-3388)	P-1 (3393-3394)	P-1 (3399-3400)	P-1 (3405-3406)	P-1 (3411-3412)	P-1 (3417-3418)	P-1 (3423-3424)	P-1 (3429-3430)	P-1 (3435-3436)	P-1 (3441-3442)	P-1 (3447-3448)	P-1 (3453-3454)	P-1 (3459-3460)	P-1 (3465-3466)	P-1 (3471-3472)	P-1 (3477-3478)	P-1 (3483-3484)	P-1 (3489-3490)	P-1 (3495-3496)	P-1 (3501-3502)	P-1 (3507-3508)	P-1 (3513-3514)	P-1 (3519-3520)	P-1 (3525-3526)	P-1 (3531-3532)	P-1 (3537-3538)	P-1 (3543-3544)	P-1 (3549-3550)	P-1 (3555-3556)	P-1 (3561-3562)	P-1 (3567-3568)	P-1 (3573-3574)	P-1 (3579-3580)	P-1 (3585-3586)	P-1 (3591-3592)	P-1 (3597-3598)	P-1 (3603-3604)	P-1 (3609-3610)	P-1 (3615-3616)	P-1 (3621-3622)	P-1 (3627-3628)	P-1 (3633-3634)	P-1 (3639-3640)	P-1 (3645-3646)	P-1 (3651-3652)	P-1 (3657-3658)	P-1 (3663-3664)	P-1 (3669-3670)	P-1 (3675-3676)	P-1 (3681-3682)	P-1 (3687-3688)	P-1 (3693-3694)	P-1 (3699-3700)	P-1 (3705-3706)	P-1 (3711-3712)	P-1 (3717-3718)	P-1 (3723-3724)	P-1 (3729-3730)	P-1 (3735-3736)	P-1 (3741-3742)	P-1 (3747-3748)	P-1 (3753-3754)	P-1 (3759-3760)	P-1 (3765-3766)	P-1 (3771-3772)	P-1 (3777-3778)	P-1 (3783-3784)	P-1 (3789-3790)	P-1 (3795-3796)	P-1 (3801-3802)	P-1 (3807-3808)	P-1 (3813-3814)	P-1 (3819-3820)	P-1 (3825-3826)	P-1 (3831-3832)	P-1 (3837-3838)	P-1 (3843-3844)	P-1 (3849-3850)	P-1 (3855-3856)	P-1 (3861-3862)	P-1 (3867-3868)	P-1 (3873-3874)	P-1 (3879-3880)	P-1 (3885-3886)	P-1 (3891-3892)	P-1 (3897-3898)	P-1 (3903-3904)	P-1 (3909-3910)	P-1 (3915-3916)	P-1 (3921-3922)	P-1 (3927-3928)	P-1 (3933-3934)	P-1 (3939-3940)	P-1 (3945-3946)	P-1 (3951-3952)	P-1 (3957-3958)	P-1 (3963-3964)	P-1 (3969-3970)	P-1 (3975-3976)	P-1 (3981-3982)	P-1 (3987-3988)	P-1 (3993-3994)	P-1 (3999-4000)	P-1 (4005-4006)	P-1 (4011-4012)	P-1 (4017-4018)	P-1 (4023-4024)	P-1 (4029-4030)	P-1 (4035-4036)	P-1 (4041-4042)	P-1 (4047-4048)	P-1 (4053-4054)	P-1 (4059-4060)	P-1 (4065-4066)	P-1 (4071-4072)	P-1 (4077-4078)	P-1 (4083-4084)	P-1 (4089-4090)	P-1 (4095-4096)	P-1 (4101-4102)	P-1 (4107-4108)	P-1 (4113-4114)	P-1 (4119-4120)	P-1 (4125-4126)	P-1 (4131-4132)	P-1 (4137-4138)	P-1 (4143-4144)	P-1 (4149-4150)	P-1 (4155-4156)	P-1 (4161-4162)	P-1 (4167-4168)	P-1 (4173-4174)	P-1 (4179-4180)	P-1 (4185-4186)	P-1 (4191-4192)	P-1 (4197-4198)	P-1 (4203-4204)	P-1 (4209-4210)	P-1 (4215-4216)	P-1 (4221-4222)	P-1 (4227-4228)	P-1 (4233-4234)	P-1 (4239-4240)	P-1 (4245-4246)	P-1 (4251-4252)	P-1 (4257-4258)	P-1 (4263-4264)	P-1 (4269-4270)	P-1 (4275-4276)	P-1 (4281-4282)	P-1 (4287-4288)	P-1 (4293-4294)	P-1 (4299-4300)	P-1 (4305-4306)	P-1 (4311-4312)	P-1 (4317-4318)	P-1 (4323-4324)	P-1 (4329-4330)	P-1 (4335-4336)	P-1 (4341-4342)	P-1 (4347-4348)	P-1 (4353-4354)	P-1 (4359-4360)	P-1 (4365-4366)	P-1 (4371-4372)	P-1 (4377-4378)	P-1 (4383-4384)	P-1 (4389-4390)	P-1 (4395-4396)	P-1 (4401-4402)	P-1 (4407-4408)	P-1 (4413-4414)	P-1 (4419-4420)	P-1 (4425-4426)	P-1 (4431-4432)	P-1 (4437-4438)	P-1 (4443-4444)
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Table 4  
Time 3  
Soil Analytical Results  
72-82 Flabesch Drive  
North Haven, Connecticut

[illegible]

Legend:  
 100% = micrograms per kilogram body weight per kilogram  
 NA = Not analyzed MS = Not Established  
 RSC DEC = Residential Direct Exposure Criteria  
 IC DEC = Industrial Commercial Direct Exposure Criteria  
 Data indicate an exceedance of one or more criteria.  
 \* = Analyzed Value

Table 4  
Zone 3  
Soil Analytical Results  
78-48 Rabenold Drive  
North Haven, Connecticut

Sampling Location		Sample Depth		CB PWC		REV DEC		IC DEC		P-18 (10-11)		P-19 (11-12)		P-18 (2-4)		P-18 (3-4)		P-18 (4-5)		P-18 (5-6)		P-18 (6-7)		P-18 (7-8)		P-18 (8-9)		P-18 (9-10)		P-18 (10-11)		P-18 (11-12)		P-18 (12-13)		P-18 (13-14)		P-18 (14-15)		P-18 (15-16)		P-18 (16-17)		P-18 (17-18)		P-18 (18-19)		P-18 (19-20)		P-18 (20-21)		P-18 (21-22)		P-18 (22-23)		P-18 (23-24)		P-18 (24-25)		P-18 (25-26)		P-18 (26-27)		P-18 (27-28)		P-18 (28-29)		P-18 (29-30)		P-18 (30-31)		P-18 (31-32)		P-18 (32-33)		P-18 (33-34)		P-18 (34-35)		P-18 (35-36)		P-18 (36-37)		P-18 (37-38)		P-18 (38-39)		P-18 (39-40)		P-18 (40-41)		P-18 (41-42)		P-18 (42-43)		P-18 (43-44)		P-18 (44-45)		P-18 (45-46)		P-18 (46-47)		P-18 (47-48)		P-18 (48-49)		P-18 (49-50)		P-18 (50-51)		P-18 (51-52)		P-18 (52-53)		P-18 (53-54)		P-18 (54-55)		P-18 (55-56)		P-18 (56-57)		P-18 (57-58)		P-18 (58-59)		P-18 (59-60)		P-18 (60-61)		P-18 (61-62)		P-18 (62-63)		P-18 (63-64)		P-18 (64-65)		P-18 (65-66)		P-18 (66-67)		P-18 (67-68)		P-18 (68-69)		P-18 (69-70)		P-18 (70-71)		P-18 (71-72)		P-18 (72-73)		P-18 (73-74)		P-18 (74-75)		P-18 (75-76)		P-18 (76-77)		P-18 (77-78)		P-18 (78-79)		P-18 (79-80)		P-18 (80-81)		P-18 (81-82)		P-18 (82-83)		P-18 (83-84)		P-18 (84-85)		P-18 (85-86)		P-18 (86-87)		P-18 (87-88)		P-18 (88-89)		P-18 (89-90)		P-18 (90-91)		P-18 (91-92)		P-18 (92-93)		P-18 (93-94)		P-18 (94-95)		P-18 (95-96)		P-18 (96-97)		P-18 (97-98)		P-18 (98-99)		P-18 (99-100)		P-18 (100-101)		P-18 (101-102)		P-18 (102-103)		P-18 (103-104)		P-18 (104-105)		P-18 (105-106)		P-18 (106-107)		P-18 (107-108)		P-18 (108-109)		P-18 (109-110)		P-18 (110-111)		P-18 (111-112)		P-18 (112-113)		P-18 (113-114)		P-18 (114-115)		P-18 (115-116)		P-18 (116-117)		P-18 (117-118)		P-18 (118-119)		P-18 (119-120)		P-18 (120-121)		P-18 (121-122)		P-18 (122-123)		P-18 (123-124)		P-18 (124-125)		P-18 (125-126)		P-18 (126-127)		P-18 (127-128)		P-18 (128-129)		P-18 (129-130)		P-18 (130-131)		P-18 (131-132)		P-18 (132-133)		P-18 (133-134)		P-18 (134-135)		P-18 (135-136)		P-18 (136-137)		P-18 (137-138)		P-18 (138-139)		P-18 (139-140)		P-18 (140-141)		P-18 (141-142)		P-18 (142-143)		P-18 (143-144)		P-18 (144-145)		P-18 (145-146)		P-18 (146-147)		P-18 (147-148)		P-18 (148-149)		P-18 (149-150)		P-18 (150-151)		P-18 (151-152)		P-18 (152-153)		P-18 (153-154)		P-18 (154-155)		P-18 (155-156)		P-18 (156-157)		P-18 (157-158)		P-18 (158-159)		P-18 (159-160)		P-18 (160-161)		P-18 (161-162)		P-18 (162-163)		P-18 (163-164)		P-18 (164-165)		P-18 (165-166)		P-18 (166-167)		P-18 (167-168)		P-18 (168-169)		P-18 (169-170)		P-18 (170-171)		P-18 (171-172)		P-18 (172-173)		P-18 (173-174)		P-18 (174-175)		P-18 (175-176)		P-18 (176-177)		P-18 (177-178)		P-18 (178-179)		P-18 (179-180)		P-18 (180-181)		P-18 (181-182)		P-18 (182-183)		P-18 (183-184)		P-18 (184-185)		P-18 (185-186)		P-18 (186-187)		P-18 (187-188)		P-18 (188-189)		P-18 (189-190)		P-18 (190-191)		P-18 (191-192)		P-18 (192-193)		P-18 (193-194)		P-18 (194-195)		P-18 (195-196)		P-18 (196-197)		P-18 (197-198)		P-18 (198-199)		P-18 (199-200)		P-18 (200-201)		P-18 (201-202)		P-18 (202-203)		P-18 (203-204)		P-18 (204-205)		P-18 (205-206)		P-18 (206-207)		P-18 (207-208)		P-18 (208-209)		P-18 (209-210)		P-18 (210-211)		P-18 (211-212)		P-18 (212-213)		P-18 (213-214)		P-18 (214-215)		P-18 (215-216)		P-18 (216-217)		P-18 (217-218)		P-18 (218-219)		P-18 (219-220)		P-18 (220-221)		P-18 (221-222)		P-18 (222-223)		P-18 (223-224)		P-18 (224-225)		P-18 (225-226)		P-18 (226-227)		P-18 (227-228)		P-18 (228-229)		P-18 (229-230)		P-18 (230-231)		P-18 (231-232)		P-18 (232-233)		P-18 (233-234)		P-18 (234-235)		P-18 (235-236)		P-18 (236-237)		P-18 (237-238)		P-18 (238-239)		P-18 (239-240)		P-18 (240-241)		P-18 (241-242)		P-18 (242-243)		P-18 (243-244)		P-18 (244-245)		P-18 (245-246)		P-18 (246-247)		P-18 (247-248)		P-18 (248-249)		P-18 (249-250)		P-18 (250-251)		P-18 (251-252)		P-18 (252-253)		P-18 (253-254)		P-18 (254-255)		P-18 (255-256)		P-18 (256-257)		P-18 (257-258)		P-18 (258-259)		P-18 (259-260)		P-18 (260-261)		P-18 (261-262)		P-18 (262-263)		P-18 (263-264)		P-18 (264-265)		P-18 (265-266)		P-18 (266-267)		P-18 (267-268)		P-18 (268-269)		P-18 (269-270)		P-18 (270-271)		P-18 (271-272)		P-18 (272-273)		P-18 (273-274)		P-18 (274-275)		P-18 (275-276)		P-18 (276-277)		P-18 (277-278)		P-18 (278-279)		P-18 (279-280)		P-18 (280-281)		P-18 (281-282)		P-18 (282-283)		P-18 (283-284)		P-18 (284-285)		P-18 (285-286)		P-18 (286-287)		P-18 (287-288)		P-18 (288-289)		P-18 (289-290)		P-18 (290-291)		P-18 (291-292)		P-18 (292-293)		P-18 (293-294)		P-18 (294-295)		P-18 (295-296)		P-18 (296-297)		P-18 (297-298)		P-18 (298-299)		P-18 (299-300)		P-18 (300-301)		P-18 (301-302)		P-18 (302-303)		P-18 (303-304)		P-18 (304-305)		P-18 (305-306)		P-18 (306-307)		P-18 (307-308)		P-18 (308-309)		P-18 (309-310)		P-18 (310-311)		P-18 (311-312)		P-18 (312-313)		P-18 (313-314)		P-18 (314-315)		P-18 (315-316)		P-18 (316-317)		P-18 (317-318)		P-18 (318-319)		P-18 (319-320)		P-18 (320-321)		P-18 (321-322)		P-18 (322-323)		P-18 (323-324)		P-18 (324-325)		P-18 (325-326)		P-18 (326-327)		P-18 (327-328)		P-18 (328-329)		P-18 (329-330)		P-18 (330-331)		P-18 (331-332)		P-18 (332-333)		P-18 (333-334)		P-18 (334-335)		P-18 (335-336)		P-18 (336-337)		P-18 (337-338)		P-18 (338-339)		P-18 (339-340)		P-18 (340-341)		P-18 (341-342)		P-18 (342-343)		P-18 (343-344)		P-18 (344-345)		P-18 (345-346)		P-18 (346-347)		P-18 (347-348)		P-18 (348-349)		P-18 (349-350)		P-18 (350-351)		P-18 (351-352)		P-18 (352-353)		P-18 (353-354)		P-18 (354-355)	
Station	Depth	CB	PWC	REV	DEC	IC	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC	P-18	DEC																																																																																																																																																																																																																																										



Table 4  
Zone 1  
Soil Analytical Results  
75-80 Railroad Drive  
North Haven, Connecticut

Location	GR PNC	RES DEC	IC DEC	P-23 (1-2)	P-23 (3-4)	P-23 (5-6)	P-23 (7-8)	P-23 (9-10)	P-23 (11-12)	P-23 (13-14)	P-23 (15-16)	P-23 (17-18)	P-23 (19-20)	P-23 (21-22)	P-23 (23-24)	P-23 (25-26)	P-23 (27-28)	P-23 (29-30)	P-23 (31-32)	P-23 (33-34)	P-23 (35-36)	P-23 (37-38)	P-23 (39-40)	P-23 (41-42)	P-23 (43-44)	P-23 (45-46)	P-23 (47-48)	P-23 (49-50)	P-23 (51-52)	P-23 (53-54)	P-23 (55-56)	P-23 (57-58)	P-23 (59-60)	P-23 (61-62)	P-23 (63-64)	P-23 (65-66)	P-23 (67-68)	P-23 (69-70)	P-23 (71-72)	P-23 (73-74)	P-23 (75-76)	P-23 (77-78)	P-23 (79-80)	P-23 (81-82)	P-23 (83-84)	P-23 (85-86)	P-23 (87-88)	P-23 (89-90)	P-23 (91-92)	P-23 (93-94)	P-23 (95-96)	P-23 (97-98)	P-23 (99-100)	P-23 (101-102)	P-23 (103-104)	P-23 (105-106)	P-23 (107-108)	P-23 (109-110)	P-23 (111-112)	P-23 (113-114)	P-23 (115-116)	P-23 (117-118)	P-23 (119-120)	P-23 (121-122)	P-23 (123-124)	P-23 (125-126)	P-23 (127-128)	P-23 (129-130)	P-23 (131-132)	P-23 (133-134)	P-23 (135-136)	P-23 (137-138)	P-23 (139-140)	P-23 (141-142)	P-23 (143-144)	P-23 (145-146)	P-23 (147-148)	P-23 (149-150)	P-23 (151-152)	P-23 (153-154)	P-23 (155-156)	P-23 (157-158)	P-23 (159-160)	P-23 (161-162)	P-23 (163-164)	P-23 (165-166)	P-23 (167-168)	P-23 (169-170)	P-23 (171-172)	P-23 (173-174)	P-23 (175-176)	P-23 (177-178)	P-23 (179-180)	P-23 (181-182)	P-23 (183-184)	P-23 (185-186)	P-23 (187-188)	P-23 (189-190)	P-23 (191-192)	P-23 (193-194)	P-23 (195-196)	P-23 (197-198)	P-23 (199-200)	P-23 (201-202)	P-23 (203-204)	P-23 (205-206)	P-23 (207-208)	P-23 (209-210)	P-23 (211-212)	P-23 (213-214)	P-23 (215-216)	P-23 (217-218)	P-23 (219-220)	P-23 (221-222)	P-23 (223-224)	P-23 (225-226)	P-23 (227-228)	P-23 (229-230)	P-23 (231-232)	P-23 (233-234)	P-23 (235-236)	P-23 (237-238)	P-23 (239-240)	P-23 (241-242)	P-23 (243-244)	P-23 (245-246)	P-23 (247-248)	P-23 (249-250)	P-23 (251-252)	P-23 (253-254)	P-23 (255-256)	P-23 (257-258)	P-23 (259-260)	P-23 (261-262)	P-23 (263-264)	P-23 (265-266)	P-23 (267-268)	P-23 (269-270)	P-23 (271-272)	P-23 (273-274)	P-23 (275-276)	P-23 (277-278)	P-23 (279-280)	P-23 (281-282)	P-23 (283-284)	P-23 (285-286)	P-23 (287-288)	P-23 (289-290)	P-23 (291-292)	P-23 (293-294)	P-23 (295-296)	P-23 (297-298)	P-23 (299-300)	P-23 (301-302)	P-23 (303-304)	P-23 (305-306)	P-23 (307-308)	P-23 (309-310)	P-23 (311-312)	P-23 (313-314)	P-23 (315-316)	P-23 (317-318)	P-23 (319-320)	P-23 (321-322)	P-23 (323-324)	P-23 (325-326)	P-23 (327-328)	P-23 (329-330)	P-23 (331-332)	P-23 (333-334)	P-23 (335-336)	P-23 (337-338)	P-23 (339-340)	P-23 (341-342)	P-23 (343-344)	P-23 (345-346)	P-23 (347-348)	P-23 (349-350)	P-23 (351-352)	P-23 (353-354)	P-23 (355-356)	P-23 (357-358)	P-23 (359-360)	P-23 (361-362)	P-23 (363-364)	P-23 (365-366)	P-23 (367-368)	P-23 (369-370)	P-23 (371-372)	P-23 (373-374)	P-23 (375-376)	P-23 (377-378)	P-23 (379-380)	P-23 (381-382)	P-23 (383-384)	P-23 (385-386)	P-23 (387-388)	P-23 (389-390)	P-23 (391-392)	P-23 (393-394)	P-23 (395-396)	P-23 (397-398)	P-23 (399-400)	P-23 (401-402)	P-23 (403-404)	P-23 (405-406)	P-23 (407-408)	P-23 (409-410)	P-23 (411-412)	P-23 (413-414)	P-23 (415-416)	P-23 (417-418)	P-23 (419-420)	P-23 (421-422)	P-23 (423-424)	P-23 (425-426)	P-23 (427-428)	P-23 (429-430)	P-23 (431-432)	P-23 (433-434)	P-23 (435-436)	P-23 (437-438)	P-23 (439-440)	P-23 (441-442)	P-23 (443-444)	P-23 (445-446)	P-23 (447-448)	P-23 (449-450)	P-23 (451-452)	P-23 (453-454)	P-23 (455-456)	P-23 (457-458)	P-23 (459-460)	P-23 (461-462)	P-23 (463-464)	P-23 (465-466)	P-23 (467-468)	P-23 (469-470)	P-23 (471-472)	P-23 (473-474)	P-23 (475-476)	P-23 (477-478)	P-23 (479-480)	P-23 (481-482)	P-23 (483-484)	P-23 (485-486)	P-23 (487-488)	P-23 (489-490)	P-23 (491-492)	P-23 (493-494)	P-23 (495-496)	P-23 (497-498)	P-23 (499-500)	P-23 (501-502)	P-23 (503-504)	P-23 (505-506)	P-23 (507-508)	P-23 (509-510)	P-23 (511-512)	P-23 (513-514)	P-23 (515-516)	P-23 (517-518)	P-23 (519-520)	P-23 (521-522)	P-23 (523-524)	P-23 (525-526)	P-23 (527-528)	P-23 (529-530)	P-23 (531-532)	P-23 (533-534)	P-23 (535-536)	P-23 (537-538)	P-23 (539-540)	P-23 (541-542)	P-23 (543-544)	P-23 (545-546)	P-23 (547-548)	P-23 (549-550)	P-23 (551-552)	P-23 (553-554)	P-23 (555-556)	P-23 (557-558)	P-23 (559-560)	P-23 (561-562)	P-23 (563-564)	P-23 (565-566)	P-23 (567-568)	P-23 (569-570)	P-23 (571-572)	P-23 (573-574)	P-23 (575-576)	P-23 (577-578)	P-23 (579-580)	P-23 (581-582)	P-23 (583-584)	P-23 (585-586)	P-23 (587-588)	P-23 (589-590)	P-23 (591-592)	P-23 (593-594)	P-23 (595-596)	P-23 (597-598)	P-23 (599-600)	P-23 (601-602)	P-23 (603-604)	P-23 (605-606)	P-23 (607-608)	P-23 (609-610)	P-23 (611-612)	P-23 (613-614)	P-23 (615-616)	P-23 (617-618)	P-23 (619-620)	P-23 (621-622)	P-23 (623-624)	P-23 (625-626)	P-23 (627-628)	P-23 (629-630)	P-23 (631-632)	P-23 (633-634)	P-23 (635-636)	P-23 (637-638)	P-23 (639-640)	P-23 (641-642)	P-23 (643-644)	P-23 (645-646)	P-23 (647-648)	P-23 (649-650)	P-23 (651-652)	P-23 (653-654)	P-23 (655-656)	P-23 (657-658)	P-23 (659-660)	P-23 (661-662)	P-23 (663-664)	P-23 (665-666)	P-23 (667-668)	P-23 (669-670)	P-23 (671-672)	P-23 (673-674)	P-23 (675-676)	P-23 (677-678)	P-23 (679-680)	P-23 (681-682)	P-23 (683-684)	P-23 (685-686)	P-23 (687-688)	P-23 (689-690)	P-23 (691-692)	P-23 (693-694)	P-23 (695-696)	P-23 (697-698)	P-23 (699-700)	P-23 (701-702)	P-23 (703-704)	P-23 (705-706)	P-23 (707-708)	P-23 (709-710)	P-23 (711-712)	P-23 (713-714)	P-23 (715-716)	P-23 (717-718)	P-23 (719-720)	P-23 (721-722)	P-23 (723-724)	P-23 (725-726)	P-23 (727-728)	P-23 (729-730)	P-23 (731-732)	P-23 (733-734)	P-23 (735-736)	P-23 (737-738)	P-23 (739-740)	P-23 (741-742)	P-23 (743-744)	P-23 (745-746)	P-23 (747-748)	P-23 (749-750)	P-23 (751-752)	P-23 (753-754)	P-23 (755-756)	P-23 (757-758)	P-23 (759-760)	P-23 (761-762)	P-23 (763-764)	P-23 (765-766)	P-23 (767-768)	P-23 (769-770)	P-23 (771-772)	P-23 (773-774)	P-23 (775-776)	P-23 (777-778)	P-23 (779-780)	P-23 (781-782)	P-23 (783-784)	P-23 (785-786)	P-23 (787-788)	P-23 (789-790)	P-23 (791-792)	P-23 (793-794)	P-23 (795-796)	P-23 (797-798)	P-23 (799-800)	P-23 (801-802)	P-23 (803-804)	P-23 (805-806)	P-23 (807-808)	P-23 (809-810)	P-23 (811-812)	P-23 (813-814)	P-23 (815-816)	P-23 (817-818)	P-23 (819-820)	P-23 (821-822)	P-23 (823-824)	P-23 (825-826)	P-23 (827-828)	P-23 (829-830)	P-23 (831-832)	P-23 (833-834)	P-23 (835-836)	P-23 (837-838)	P-23 (839-840)	P-23 (841-842)	P-23 (843-844)	P-23 (845-846)	P-23 (847-848)	P-23 (849-850)	P-23 (851-852)	P-23 (853-854)	P-23 (855-856)	P-23 (857-858)	P-23 (859-860)	P-23 (861-862)	P-23 (863-864)	P-23 (865-866)	P-23 (867-868)	P-23 (869-870)	P-23 (871-872)	P-23 (873-874)	P-23 (875-876)	P-23 (877-878)	P-23 (879-880)	P-23 (881-882)	P-23 (883-884)	P-23 (885-886)	P-23 (887-888)	P-23 (889-890)	P-23 (891-892)	P-23 (893-894)	P-23 (895-896)	P-23 (897-898)	P-23 (899-900)	P-23 (901-902)	P-23 (903-904)	P-23 (905-906)	P-23 (907-908)	P-23 (909-910)	P-23 (911-912)	P-23 (913-914)	P-23 (915-916)	P-23 (917-918)	P-23 (919-920)	P-23 (921-922)	P-23 (923-924)	P-23 (925-926)	P-23 (927-928)	P-23 (929-930)	P-23 (931-932)	P-23 (933-934)	P-23 (935-936)	P-23 (937-938)	P-23 (939-940)	P-23 (941-942)	P-23 (943-944)	P-23 (945-946)	P-23 (947-948)	P-23 (949-950)	P-23 (951-952)	P-23 (953-954)	P-23 (955-956)	P-23 (957-958)	P-23 (959-960)	P-23 (961-962)	P-23 (963-964)	P-23 (965-966)	P-23 (967-968)	P-23 (969-970)	P-23 (971-972)	P-23 (973-974)	P-23 (975-976)	P-23 (977-978)	P-23 (979-980)	P-23 (981-982)	P-23 (983-984)	P-23 (985-986)	P-23 (987-988)	P-23 (989-990)	P-23 (991-992)	P-23 (993-994)	P-23 (995-996)	P-23 (997-998)	P-23 (999-1000)	P-23 (1001-1002)	P-23 (1003-1004)	P-23 (1005-1006)	P-23 (1007-1008)	P-23 (1009-1010)	P-23 (1011-1012)	P-23 (1013-1014)	P-23 (1015-1016)	P-23 (1017-1018)	P-23 (1019-1020)	P-23 (1021-1022)	P-23 (1023-1024)	P-23 (1025-1026)	P-23 (1027-1028)	P-23 (1029-1030)	P-23 (1031-1032)	P-23 (1033-1034)	P-23 (1035-1036)	P-23 (1037-1038)	P-23 (1039-1040)	P-23 (1041-1042)	P-23 (1043-1044)	P-23 (1045-1046)	P-23 (1047-1048)	P-23 (1049-1050)	P-23 (1051-1052)	P-23 (1053-1054)	P-23 (1055-1056)	P-23 (1057-1058)	P-23 (1059-1060)	P-23 (1061-1062)	P-23 (1063-1064)	P-23 (1065-1066)	P-23 (1067-1068)	P-23 (1069-1070)	P-23 (1071-1072)	P-23 (1073-1074)	P-23 (1075-1076)	P-23 (1077-1078)	P-23 (1079-1080)	P-23 (1081-1082)	P-23 (1083-1084)	P-23 (1085-1086)	P-23 (1087-1088)	P-23 (1089-1090)	P-23 (1091-1092)	P-23 (1093-1094)	P-23 (1095-1096)	P-23 (1097-1098)	P-23 (1099-1100)	P-23 (1101-1102)	P-23 (1103-1104)	P-23 (1105-1106)	P-23 (1107-1108)	P-23 (1109-1110)	P-23 (1111-1112)	P-23 (1113-1114)	P-23 (1115-1116)	P-23 (1117-1118)	P-23 (1119-1120)	P-23 (1121-1122)	P-23 (1123-1124)	P-23 (1125-1126)	P-23 (1127-1128)	P-23 (1129-1130)	P-23 (1131-1132)	P-23 (1133-1134)	P-23 (1135-1136)	P-23 (1137-1138)	P-23 (1139-1140)	P-23 (1141-1142)	P-23 (1143-1144)	P-23 (1145-1146)	P-23 (1147-1148)	P-23 (1149-1150)	P-23 (1151-1152)	P-23 (1153-1154)	P-23 (1155-1156)	P-23 (1157-1158)	P-23 (1159-1160)	P-23 (1161-1162)	P-23 (1163-1164)	P-23 (1165-1166)	P-23 (1167-1168)	P-23 (1169-1170)	P-23 (1171-1172)	P-23 (1173-1174)	P-23 (1175-1176)	P-23 (1177-1178)	P-23 (1179-1180)	P-23 (1181-1182)	P-23 (1183-1184)	P-23 (1185-1186)	P-23 (1187-1188)	P-23 (1189-1190)	P-23 (1191-1192)	P-23 (1193-1194)	P-23 (1195-1196)	P-23 (1197-1198)	P-23 (1199-1200)	P-23 (1201-1202)	P-23 (1203-1204)	P-23 (1205-1206)	P-23 (1207-1208)	P-23 (1209-1210)	P-23 (1211-1212)	P-23 (1213-1214)	P-23 (1215-1216)	P-23 (1217-1218)	P-23 (1219-1220)	P-23 (1221-1222)	P-23 (1223-1224)	P-23 (1225-1226)	P-23 (1227-1228)	P-23 (1229-1230)	P-23 (1231-1232)	P-23 (1233-1234)	P-23 (1235-1236)	P-23 (1237-1238)	P-23 (1239-1240)	P-23 (1241-1242)	P-23 (1243-1244)	P-23 (1245-1246)	P-23 (1247-1248)	P-23 (1249-1250)	P-23 (1251-1252)	P-23 (1253-1254)	P-23 (1255-1256)	P-23 (1257-1258)	P-23 (1259-1260)	P-23 (1261-1262)	P-23 (1263-1264)	P-23 (1265-1266)	P-23 (1267-1268)	P-23 (1269-1270)	P-23 (1271-1272)	P-23 (1273-1274)	P-23 (1275-1276)	P-23 (1277-1278)	P-23 (1279-1280)	P-23 (1281-1282)	P-23 (1283-1284)	P-23 (1285-1286)	P-23 (1287-1288)	P-23 (1289-1290)	P-23 (1291-1292)	P-23 (1293-1294)	P-23 (1295-1296)	P-23 (1297-1298)	P-23 (1299-1300)	P-23 (1301-1302)	P-23 (1303-1304)	P-23 (1305-1306)	P-23 (1307-1308)	P-23 (1309-1310)	P-23 (1311-1312)	P-23 (1313-1314)	P-23 (1315-1316)	P-23 (1317-1318)	P-23 (1319-1320)	P-23 (1321-1322)	P-23 (1323-1324)	P-23 (1325-1326)	P-23 (1327-1328)	P-23 (1329-1330)	P-23 (1331-1332)	P-23 (1333-1334)	P-23 (1335-1336)	P-23 (1337-1338)	P-23 (1339-1340)	P-23 (1341-1342)	P-23 (1343-1344)	P-23 (1345-1346)	P-23 (1347-1348)	P-23 (1349-1350)	P-23 (1351-1352)	P-23 (1353-1354)	P-23 (1355-1356)	P-23 (1357-1358)	P-23 (1359-1360)	P-23 (1361-1362)	P-23 (1363-1364)	P-23 (1365-1366)	P-23 (1367-1368)	P-23 (1369-1370)	P-23 (1371-1372)	P-23 (1373-1374)	P-23 (1375-1376)	P-23 (1377-1378)	P-23 (1379-1380)	P-23 (1381-1382)	P-23 (1383-1384)	P-23 (1385-1386)	P-23 (1387-1388)	P-23 (1389-1390)	P-23 (1391-1392)	P-23 (1393-1394)	P-23 (1395-1396)	P-23 (1397-1398)	P-23 (1399-1400)	P-23 (1401-1402)	P-23 (1403-1404)	P-23 (1405-1406)	P-23 (1407-1408)	P-23 (1409-1410)	P-23 (1411-1412)	P-23 (1413-1414)	P-23 (1415-1416)	P-23 (1417-1418)	P-23 (1419-1420)	P-23 (1421-1422)	P-23 (1423-1424)	P-23 (1425-1426)	P-23 (1427-1428)	P-23 (1429-1430)	P-23 (1431-1432)	P-23 (1433-1434)	P-23 (1435-1436)	P-23 (1437-1438)	P-23 (1439-1440)	P-23 (1441-1442)	P-23 (1443-1444)	P-23 (1445-1446)	P-23 (1447-1448)	P-23 (1449-1450)	P-23 (1451-1452)	P-23 (1453-1454)	P-23 (1455-1456)	P-23 (1457-1458)	P-23 (1459-1460)	P-23 (1461-1462)	P-23 (1463-1464)	P-23 (1465-1466)	P-23 (1467-1468)	P-23 (1469-1470)	P-23 (1471-1472)	P-23 (1473-1474)	P-23 (1475-1476)	P-23 (1477-1478)	P-23 (1479-1480)	P-23 (1481-1482)	P-23 (1483-1484)	P-23 (14
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Table 4  
 Zone 3  
 306 Analytical Results  
 78-43 Rubens Rd Drive  
 North Haven, Connecticut

[illegible]

Note:   
 µg/g - microgram per kilogram mg/g - milligram per kilogram   
 NA - Not analyzed NE - Not Established   
 RES DEC - Residential Direct Exposure Criteria   
 IC DEC - Industrial/Commercial Direct Exposure Criteria   
 Bold indicates an exceedance of one or more criteria.   
 \* - Reasoned Value

Table 4  
Data 2  
Soil Analytical Results  
76-88 Redwood Drive  
North Haven, Connecticut

[illegible]

NA - Not analyzed    NE - Not Established  
 RES DEC - Residential Direct Exposure Criteria  
 IC DEC - Industrial/Commercial Direct Exposure Criteria  
 Bold indicates no exceedance of one or more criteria.  
 \* - Re-analyzed Value





**QUALITY ASSURANCE PROJECT PLAN**

**78-98 Rebesch Drive  
North Haven, Connecticut**

**Task: PCB Soil Characterization  
PCB and ETPH Release Areas**

**August 14, 2008**

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## **1.0 INTRODUCTION**

The Quality Assurance Project Plan (QAPP) was designed to provide a framework for sampling soil impacted with polychlorinated biphenyls (PCBs) and extractable total petroleum hydrocarbons (ETPH) at 78-98 Rebesch Drive in North Haven, Connecticut (the site). Figure 1 is a site location map. Figure 2 is a site plan with planned sampling locations. The QAPP includes background information about the site, a summary of historical sampling data, a description of the selected sampling strategy, analytical methods, quality control procedures, and a schedule for the completion of soil sampling at the site.

## **2.0 SITE BACKGROUND**

From the 1920s to late 1950s, the Site was occupied by the Montowese Brick Company. The brick company used on-site clay deposits as feed stock for the brick plant. The clay was excavated from the eastern, central, and western portions of the site creating a pond which covered most of the property. The brick plant operated a building at the western edge of 78-98 Rebesch Drive. Most of the brick plant was located off-site and in the approximate location of I-91 (adjacent to the west).

In the late 1950s, the Montowese Brick Company ended their operations and the Montowese Tool Company began operating a tool company in the building. The Montowese Tool Company operated at the western edge of the site until 1972 when the building was demolished. The remainder of the site remained as a pond until the 1980s. In the 1980s, the Elm City Construction Company filled the ponds and used the site to store sand, gravel, and rock. In 1988, Paul Rebesch purchased the site and constructed the existing light commercial and industrial buildings. The buildings have been used by a variety of tenants since construction. The United States Surgical Company (USSC) operated a small repair shop and printing facility at the site from 1988 to 1998. USSC generated small quantities of hazardous waste. As a result, the site was identified as an Establishment and subject to the Connecticut Transfer Act.

In 1995, Rizzo Associates conducted soil and groundwater sampling in connection with a real estate transfer. Rizzo Associates identified artificial fill and low levels of petroleum in the fill. During a 1995 property transfer, the certifying party filed a Form I to indicate that no releases of hazardous wastes had occurred at the site (releases of petroleum did not preclude filing of a Form I under the Transfer Act in 1995).

In 2001, an additional soil and groundwater investigation was conducted to support another property transfer. Petroleum hydrocarbons were again detected in soil and groundwater and attributed to the artificial fill. Chlorinated solvents were also detected in groundwater at the southern-side of the site. Rizzo Associates attributed the chlorinated solvents to an off-site release. The certifying party filed a Form I in connection with the 2001 property transfer since no hazardous waste releases were identified (releases of petroleum still did preclude filing a Form I under the Transfer Act in 2001).

In 2004, the DEP rejected the 2001 Form I filing due to the presence of chlorinated solvents in wells at the southern side of the site (RIZ-7, RIZ-8, RIZ-9, and RIZ-10). In response, the certifying party submitted a Form III and Environmental Condition Assessment Form (ECAAF). In 2004 and 2005, Rizzo Associates conducted an additional investigation and confirmed that no on-site source of chlorinated solvents existed. The additional investigation included soil sampling, groundwater sampling, and an analysis of vertical hydraulic gradients and groundwater flow patterns for both shallow and deep groundwater. Rizzo Associates again determined that the source of chlorinated solvents was the off-site Aura/Arber/Eton Fujikura site.

Extractable total petroleum hydrocarbons (ETPH) were detected in several soil boring and well locations and is a constituent of fill materials in soil near RIZ-17/RIZ17D and RIZ-15A. A Remedial Action Plan was prepared in August 2006 to excavate the ETPH impacted material. In 2007, the soil excavation was started in the vicinity of RIZ-17/RIZ-17D. A layer of floating

product was encountered at the groundwater interface, and Stantec (formerly SECOR) determined that soil delineation was necessary before additional excavation was completed.

A waste characterization sample was collected from the excavated material and submitted for RCRA waste characterization. PCBs (below 1,000 µg/kg) were detected in the waste characterization sample. Stantec (formerly SECOR) determined that the most likely source of PCBs was historical fill used to fill the former brick yard pond.

Stantec (formerly SECOR) determined that a PCB and ETPH soil investigation was required to evaluate PCBs and ETPH in the fill material. The investigation was conducted in February 2008 and included 25 soil borings (B101 through B125).

PCBs were detected in soil collected at B101 (4-6 fbg)(34.8 µg/kg), B102 (5-6 fbg)(12 µg/kg), and B112 (8-9 fbg).(55,100 µg/kg). PCBs were below the residential Direct Exposure Criteria (res-DEC)(1,000 µg/kg) at B101 and B102, but above the res-DEC at B112. PCBs at B112 (55,100 µg/kg) were also above the threshold triggering the Toxic Substances Control Act (TSCA) self implementing work plan and remediation guidelines (50,000 µg/kg) contained in 40 CFR Part 761.

ETPH impacted soils were also identified at B101 (4-6 fbg), B102 (6-8 fbg), B105 (305 fbg), B107 (6-6.5 fbg), B108 (6-6.5 fbg), B109 (6-7 fbg), B109 (8-9 fbg), B112 (8-9 fbg), B120 (5-6 fbg), B121, B122 (4-6 fbg), B123 (4-11 fbg), B124 (6-7 fbg), and B125 (7-8 fbg). ETPH exceeded the res-DEC at B101 (4-6 fbg), B105 (3-4 fbg), B107 (6-6.5 fbg), B108 (6-6.6 fbg), B109 (7-7 fbg), B109 (8-9 fbg), B112 (8-9 fbg), B123 (4.5-5.5 fbg), B123 (10-11 fbg), and B125 (7-8 fbg). ETPH exceeded the industrial/commercial Direct Exposure Criteria (IC DEC) and GB Pollutant Mobility Criteria (GB PMC) at B105 (3-4 fbg), B112 (8-9 fbg), B123 (4.5-5.5 fbg), and B-124 (6-7 fbg).

Low levels of metals including arsenic, barium, chromium, mercury, and lead were detected in some samples at concentrations that are below the res-DEC. Metals may be partly attributable to fill constituents, but may also represent background concentrations at the concentrations that were detected.

## **Site Description**

### **2.1 Geology and Hydrogeology**

The site is located in an area underlain by alluvial fine sand, silt, clay, and gravel deposits. These materials are interbedded and form exist above sedimentary sandstone (New Haven Arkose). Bedrock is greater than 60 feet below grade.

Groundwater at the site is classified as GB groundwater, indicating groundwater known or presumed to be impacted by chemical leaks, spills, or land use impacts. The nearest surface water body is located on-site and is a small surface water pond adjacent to Rebesch Drive at the southwest-side of the site. Seasonal high groundwater ranges from 3 to 8 fbg.

Fill materials which may include ETPH and/or PCBs are anticipated below the seasonal high groundwater table. Since the res-DEC applies within 15 feet of the surface, each boring will be advanced to 15 fbg.

## **2.2 Potential Receptor Evaluation**

### **2.2.1 Water Supply Wells**

No known water supply wells exist in the vicinity of the site.

### **2.2.2 Ecological Receptor Identification**

Wetlands exist at the site and immediately adjacent to the south-side of the site. Wetlands could be considered a sensitive ecological receptor. However, no evidence was found to suggest that ETPH or PCBs have impacted the wetland. Most portions of the site are either paved or occupied by buildings. A maintained grassed area exists at the southwestern-side of the site. While soil is accessible in this area, soil is covered by vegetation. Site use in this area is infrequent.

### **2.2.3 Direct Contact**

The ETPH and PCB containing materials are buried beneath asphalt and/or concrete at depth. No excavation activities are routinely conducted at the site. As a result, the risk of inadvertent direct contact with the materials is low. The project specific health and safety plan will include provisions for minimizing direct contact with the impacted materials.

### **2.2.4 Subsurface Utilities**

Underground utilities consist of natural gas, electricity, water, and sanitary and storm sewer drains located under Rebesch Drive and between the 78 and 98 Rebesch Drive buildings. The utilities serve the site building. No evidence was found to suggest that the utilities serve as a preferential pathway for contaminant migration.

Buried utilities will be identified by a private utility locating contractor before the investigation is conducted.

### 3.0 CONCEPTUAL SITE MODEL

Stantec has developed a conceptual site model (CSM) for the site in accordance with the Connecticut Department of Environmental Protection's (DEP) guidance. The CSM provides a framework for additional site investigation and remediation at the site.

#### Petroleum Impacted Soil and Groundwater

Artificial fill which may contain ETPH and PCBs exists in the vicinity of RIZ-15A, B105, B106, and B107, and RIZ-17/RIZ-17D. These areas have been designated Zone 1, Zone 2, and Zone 3. Soil in these zones may contain ETPH and PCBs above the res-DEC and/or IC DEC. Further delineation is necessary to determine the three dimensional nature and extent of each release zone.

#### Chlorinated VOC Impacted Groundwater

The source of chlorinated solvents at 78-98 Rebesch Drive appears to be from the nearby release of chlorinated solvents at the adjacent Aura/Arber/Eton Fujikura site at 40-50 McDermott Drive. High levels of tetrachloroethene (PCE), trichloroethene (TCE), 1,1,1-trichloroethane (TCA) and related compounds remain in saturated groundwater at the Aura/Arber/Eton Fujikura site. An Environmental Land Use Restriction (ELUR) was filed for saturated soil below 4 fbg and an air sparging system was used to reduce chlorinated volatile organic compounds (VOCs) in groundwater from 1999 to 2002.

Since air sparging physically disperses contaminants, it is likely that at least some of these compounds were transported from the source area to 78-98 Rebesch Drive (the site) by dispersion. VOC migration may have also occurred as a result of Dense Non Aqueous Phase Liquid (DNAPL) transport on the confining clay layer beneath both sites. VOC migration may have also occurred by molecular diffusion.

The CSM continues to indicate that no source of chlorinated solvents exists at 78-98 Rebesch Drive.



## 4.0 QUALITY ASSURANCE PROJECT PLAN

The QAPP contains a summary of the project staff, sampling protocols, analytical methods, and quality control procedures.

Provided in the table below are the individuals involved in the completion of this remedial action listed by specific task.

Responsible Individual	Telephone Number	Task Responsible
John Insall, LEP - Stantec	(860) 948-1628	Project Director
Anthony Koval - Stantec	(860) 948-1628	Project Manager
Martha Lemmon - Stantec	(860) 948-1628	Site Manager

### 4.1 Analytical Method/Quality Assurance

The soil delineation project includes the collection of soil samples from each zone. The sampling requirements, including matrix, frequency of collection, analytical parameter, analytical method, sample preservation, sample container volume and type, and holding time is provided in the Analytical Methods/Quality Assurance summary table below.

Matrix Type	No. of Samples	No. of Trip/ Field Blanks	Analytical Parameter	Analytical Method	Sample Preservation	Sample Container	Sample Holding Time
Zone 1 Soil		1/1	PCBs and ETPH	USEPA Method 8082 (3540C Extraction) and ETPH	Cool 4° C	4 oz. amber jar	14 Days
Zone 2 Soil		1/1	PCBs and ETPH	USEPA Method 8082 (3540C Extraction) and ETPH	Cool 4° C	4 oz. amber jar	14 Days
Zone 3 Soil		1/1	PCBs and ETPH	USEPA Method 8082 (3540C Extraction) and ETPH	Cool 4° C	4 oz. amber jar	14 Days

In zones 1 and 2, and part of Zone 3, soil borings will be spaced 35-40 feet on center to address Transfer Act site characterization requirements. In zone 3, soil borings will be positioned 10 feet on center in the TSCA regulated area. In the Transfer Act regulated area of Zone 3, two selected soil borings will be collected from each boring and analyzed for PCBs by EPA method 3540C and ETPH. Soils selected for analysis will be based on field screening results. In the Transfer Act regulated areas of Zones 1 and 2, we anticipate that the soil borings will be collected when impacted soil becomes evident and below the saturated groundwater zone where it appears the release diminishes (2 samples per boring). Since the DEC applies to 15 fbg, each boring will be advanced to 15 fbg. In the TSCA regulated areas, soil samples will be collected every other foot from the surface to 15 fbg (7 samples per boring) and analyzed for PCBs by EPA Method 3540C. Two selected soil samples per boring in the TSCA

regulated area will also be submitted for ETPH. These soil samples will be based on field screening results and designed to delineate the volume of ETPH impacted soil in this area. In summary, the following breakdown of samples is anticipated:

- ZONE 1 = 26 borings x 2 samples per boring (52 samples total) for PCBs and ETPH.
- ZONE 2 = 25 borings x 2 samples per boring (50 samples total ) for PCBs and ETPH.
- ZONE 3 (non TSCA area) = 12 borings x 2 samples per boring (24 samples total) for PCBs and ETPH.
- ZONE 3 (TSCA regulated) = 42 borings x 7 samples per boring (294 samples total) for PCBs; and 2 samples per boring for ETPH (84 samples).

#### **4.2 Sampling Methodology**

Soil samples will be collected using a direct push Geoprobe. Soil will be collected from the appropriate sampling interval using disposable scoops. Soil from the representative depth will be homogenized in disposable paper bowls. Each sample will be homogenized in new and uncontaminated scoops and bowls before being transferred into laboratory glassware. Samples will be labeled and recorded on a Chain of Custody (COC) on a daily basis.

Soil descriptions will be recorded in the field and note field screening results with a photoionization detector (PID), staining, grain characteristics, and the presence of fill materials.

Prior to delivery to the laboratory, soil will be stored on ice at 4 degrees Celsius.

All soil samples will be collected using the CT DEP soil sampling guidance document dated February 2006.

After each soil boring has been completed, borings will be backfilled with soil cuttings and the surface will be repaired with asphalt patch or concrete, as appropriate.

Soil will be delivered to the lab for PCB and ETPH analyses using extraction method 3540C.

#### **4.3 Equipment Summary**

The following mechanical equipment will be utilized during the field work associated with the proposed remedial action: a PID equipped with a 10.7 eV lamp, a water depth probe, and the appropriate sampling apparatus. All non-disposable equipment will be cleaned between sampling locations using Alconox detergent, water rinse, hexane rinse, and water rinse. Investigation derived wastes will be containerized pending off-site disposal.

Other equipment will be operated in accordance with the manufacturer specification, including calibration of all field instruments, which is performed prior to the initiation of field work and on a schedule indicated by the manufacturer.

#### **4.4 Laboratory Summary**

All samples collected as part of this scope of work will be analyzed by Spectrum Analytical, Inc. of Agawam, Massachusetts. Spectrum is a NELAC accredited laboratory and holds Connecticut Laboratory certification PH-0777.

All lab analyses will be conducted with the use of Reasonable Confidence Protocols (RCPs) to ensure laboratory data quality.

## **5.0 PROPOSED SCHEDULE**

The soil investigation is planned from August 20, 2008 to September 5, 2008. Soil samples will be analyzed on a standard ten day turn around schedule. Analytical results will be available September 3-19<sup>th</sup>, 2008.



**APPENDIX A**  
**PCB SOIL INVESTIGATION REPORT**  
**78-98 REBESCHI DRIVE**  
**NORTH HAVEN, CONNECTICUT**

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## **PCB SOIL INVESTIGATION REPORT**

**78-98 Rebesch Drive  
North Haven, Connecticut 06108**

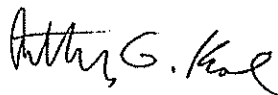
**SECOR PN: 63OT.01297.08/0001**

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**Prepared for:  
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**June 19, 2008**

**Prepared by:**



**Anthony Koval  
Scientist**

**Reviewed by:**



**John Insall, L.E.P.  
Senior Project Manager**



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- Figure 2 Site Map

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## **APPENDICES**

- APPENDIX A: Laboratory Analytical Data

## 1.0 EXECUTIVE SUMMARY

Stantec Consulting Services, Inc. (formerly SECOR), is pleased to present the findings of our PCB soil investigation at 78-98 Rebesch Drive in North Haven, Connecticut.

The soil investigation was performed to provide additional site characterization data for PCBs in fill materials in the unsaturated soil zone across the site. The investigation included the installation of 23 additional soil borings to saturated groundwater. Soil screening in the field, and soil analysis for PCBs using EPA Method 3540C. During the investigation, selected soil samples were also analyzed for extractable total petroleum hydrocarbons (ETPH) and poly aromatic hydrocarbons (PAH) by EPA Method 8270 and total 8 Resource Conservation and Recovery Act (RCRA) metals. The soil samples selected for additional analyses were selected based on field screening results and visual appearance of soils.

PCBs were detected in soil collected at B101 (4-6 fbg)(34.8 µg/kg), B102 (5-6 fbg)(12 µg/kg), and B112 (8-9 fbg)(55,100 µg/kg). PCBs were below the residential Direct Exposure Criteria (res-DEC)(1,000 µg/kg) at B101 and B102, but above the res-DEC at B112. PCBs at B112 (55,100 µg/kg) were also above the threshold triggering the Toxic Substances Control Act (TSCA) self implementing work plan and remediation guidelines (50,000 µg/kg) contained in 40 CFR Part 761. As a result, remediation of the release will require EPA review and approval of the remedial work plan.

ETPH impacted soils were also identified at B101 (4-6 fbg), B102 (6-8 fbg), B105 (305 fbg), B107 (6-6.5 fbg), B108 (6-6.5 fbg), B109 (6-7 fbg), B109 (8-9 fbg), B112 (8-9 fbg), B120 (5-6 fbg), B121, B122 (4-6 fbg), B123 (4-11 fbg), B124 (6-7 fbg), and B125 (7-8 fbg). ETPH exceeded the res-DEC at B101 (4-6 fbg), B105 (3-4 fbg), B107 (6-6.5 fbg), B108 (6-6.6 fbg), B109 (7-7 fbg), B109 (8-9 fbg), B112 (8-9 fbg), B123 (4.5-5.5 fbg), B123 (10-11 fbg), and B125 (7-8 fbg). ETPH exceeded the industrial/commercial Direct Exposure Criteria (IC DEC) and GB Pollutant Mobility Criteria (GB PMC) at B105 (3-4 fbg), B112 (8-9 fbg), B123 (4.5-5.5 fbg), and B-124 (6-7 fbg).

Low levels of metals including arsenic, barium, chromium, mercury, and lead were detected in some samples at concentrations that are below the res-DEC. Metals may be partly attributable to fill constituents, but may also represent background concentrations at the concentrations that were detected.

### Conclusions

The data suggest that ETPH exceeds the res-DEC in many locations across the site. ETPH appears to be a constituent of fill materials. Potential response actions may include soil excavation combined with the use of an Environmental Land Use Restriction to render some soils inaccessible and environmentally isolated.

Additional soil characterization is required under 40 CFR Part 761.265 using a three meter sampling grid in each PCB detection area. The sampling protocol must meet the sampling frequency for each release area of at least 3 samples and provide coverage in all directions to adequately characterize each area as outlined in 40 CFR Part 761.283.

Additional soil sampling is also required under the Transfer Act and Remediation Standard Regulations (RSRs) to characterize the extent of ETPH in soils.

## **2.0 PHASE II PRELIMINARY ACTIVITIES**

SECOR conducted the advancement of 23 soil borings in areas of concern identified at the site.

Prior to soil boring and monitoring well installation, SECOR contacted Call Before You Dig to obtain a utility clearance for well and boring locations. SECOR was issued ticket number 20080301792.

### **3.0 SOIL CHARACTERIZATION SCOPE OF WORK**

The soil investigation was performed to provide additional site characterization data for PCBs in fill materials in the unsaturated soil zone across the site. The investigation included the installation of 23 additional soil borings to saturated groundwater. Soil screening in the field, and soil analysis for PCBs using EPA Method 3540C. During the investigation, selected soil samples were also analyzed for extractable total petroleum hydrocarbons (ETPH) and poly aromatic hydrocarbons (PAH) by EPA Method 8270 and total 8 Resource Conservation and Recovery Act (RCRA) metals. The soil samples selected for additional analyses were selected based on field screening results and visual appearance of soils.

The borings were advanced with a truck mounted Geoprobe. Each boring was backfilled with sand and native soil materials and finished at the surface with asphalt upon completion.

#### **4.0 SOIL SAMPLING**

Twenty three soil borings were advanced using truck mounted geoprobe on January 24 and 25, 2008. Soil at each location was screened continuously from the surface to saturated groundwater with a calibrated PID equipped with a 11.7 eV lamp. Soil staining was observed at B101, B105, B107, B108, B109, B112, B123, B124, and B125. Soil staining was most pronounced immediately above the saturated groundwater zone at 7-8 feet. However, some shallower soil staining was also observed. Slightly elevated PID recordings were recorded in these locations.

Soil samples were collected and preserved in the field in accordance with the DEP's soil sample preservation guidelines dated March 2006 and submitted to the laboratory for PCB analysis by EPA Method 3540C. After soil sample collection, each sample was stored on ice in a cooler. After soil sampling was completed, the soil samples were transferred under Chain of Custody and stored in a sample refrigerator until transported to the laboratory for analysis. All soil samples were analyzed using the DEP's Reasonable Confidence Protocols (RCPs).

Soil sampling and monitoring well locations are presented on Figure 2 and soil analytical results are presented in Table 1.

## 5.0 SOIL SAMPLING RESULTS

PCBs were detected in soil collected at B101 (4-6 fbg)(34.8 µg/kg), B102 (5-6 fbg)(12 µg/kg), and B112 (8-9 fbg).(55,100 µg/kg). PCBs were below the residential Direct Exposure Criteria (res-DEC)(1,000 µg/kg) at B101 and B102, but above the res-DEC at B112. PCBs at B112 (55,100 µg/kg) were also above the threshold triggering the Toxic Substances Control Act (TSCA) self implementing work plan and remediation guidelines (50,000 µg/kg) contained in 40 CFR Part 761. As a result, remediation of the release will require EPA review and approval of the remedial work plan.

ETPH impacted soils were also identified at B101 (4-6 fbg), B102 (6-8 fbg), B105 (305 fbg), B107 (6-6.5 fbg), B108 (6-6.5 fbg), B109 (6-7 fbg), B109 (8-9 fbg), B112 (8-9 fbg), B120 (5-6 fbg), B121, B122 (4-6 fbg), B123 (4-11 fbg), B124 (6-7 fbg), and B125 (7-8 fbg). ETPH exceeded the res-DEC at B101 (4-6 fbg), B105 (3-4 fbg), B107 (6-6.5 fbg), B108 (6-6.6 fbg), B109 (7-7 fbg), B109 (8-9 fbg), B112 (8-9 fbg), B123 (4.5-5.5 fbg), B123 (10-11 fbg), and B125 (7-8 fbg). ETPH exceeded the industrial/commercial Direct Exposure Criteria (IC DEC) and GB Pollutant Mobility Criteria (GB PMC) at B105 (3-4 fbg), B112 (8-9 fbg), B123 (4.5-5.5 fbg), and B-124 (6-7 fbg).

Low levels of metals including arsenic, barium, chromium, mercury, and lead were detected in some samples at concentrations that are below the res-DEC. Metals may be partly attributable to fill constituents, but may also represent background concentrations at the concentrations that were detected.

## **6.0 DATA REVIEW**

SECOR reviewed the data package provided by the laboratory for each sample lot. The data review was intended to ensure that the data meet data quality objectives set by the DEP in guidance documents including the use of RCPs and soil preservation techniques outlined in the DEP guidance document dated March 6, 2006. Our data review also included a review of laboratory duplicates, matrix spike samples, and the RCP narrative.

- No significant data quality issues were identified during the review. The laboratory reported that the data meet the RCP protocols for each set of samples submitted for analysis.
- In addition, no significant deviations in analytical methods, sampling handling, or chain of custody were identified.



## **7.0 CONCLUSIONS**

The data suggest that ETPH exceeds the res-DEC in many locations across the site. ETPH appears to be a constituent of fill materials. Potential response actions may include soil excavation combined with the use of an Environmental Land Use Restriction to render some soils inaccessible and environmentally isolated.

Additional soil characterization is required under 40 CFR Part 761.265 using a three meter sampling grid in each PCB detection area. The sampling protocol must meet the sampling frequency for each release area of at least 3 samples and provide coverage in all directions to adequately characterize each area as outlined in 40 CFR Part 761.283.

Additional soil sampling is also required under the Transfer Act and Remediation Standard Regulations (RSRs) to characterize the extent of ETPH in soils.

1432

Notes:

g/g - micrograms per kilogram; mg/kg - milligrams per kilogram

A - Not analyzed; IE - No Established Criteria or Not Applicable

B - Not Analyzed; United Nations Criteria

C - Not Analyzed; WHO Criteria

D DQ - Federal Government (United States) Criteria

EACCA-PAC - Class I/A/CAN Pollutant Mobile Criteria

PB PAC - Class C/B Pollutant Mobile Criteria

Cell indicate an examination of one or more criteria.

Values are rounded values.

UP is a duplicate sample collected from B102 (H-6)

Rohm & Haas Company September 28, 2006 Table 1 Page 47 of 79

**Symbols:**

- \*Indicates micrograms per kilogram body weight
- N/A=Not analyzed
- I/E = No Embryo/fetus or no applicable criteria
- CES DEC = Residential Direct Exposure Criteria
- C OEC = Industrial/Commercial Direct Exposure Criteria
- MAGAAC PNC = Class MAGAAC Polluting Mobility Criteria
- JOB PNC = Class JOB Polluting Mobility Criteria

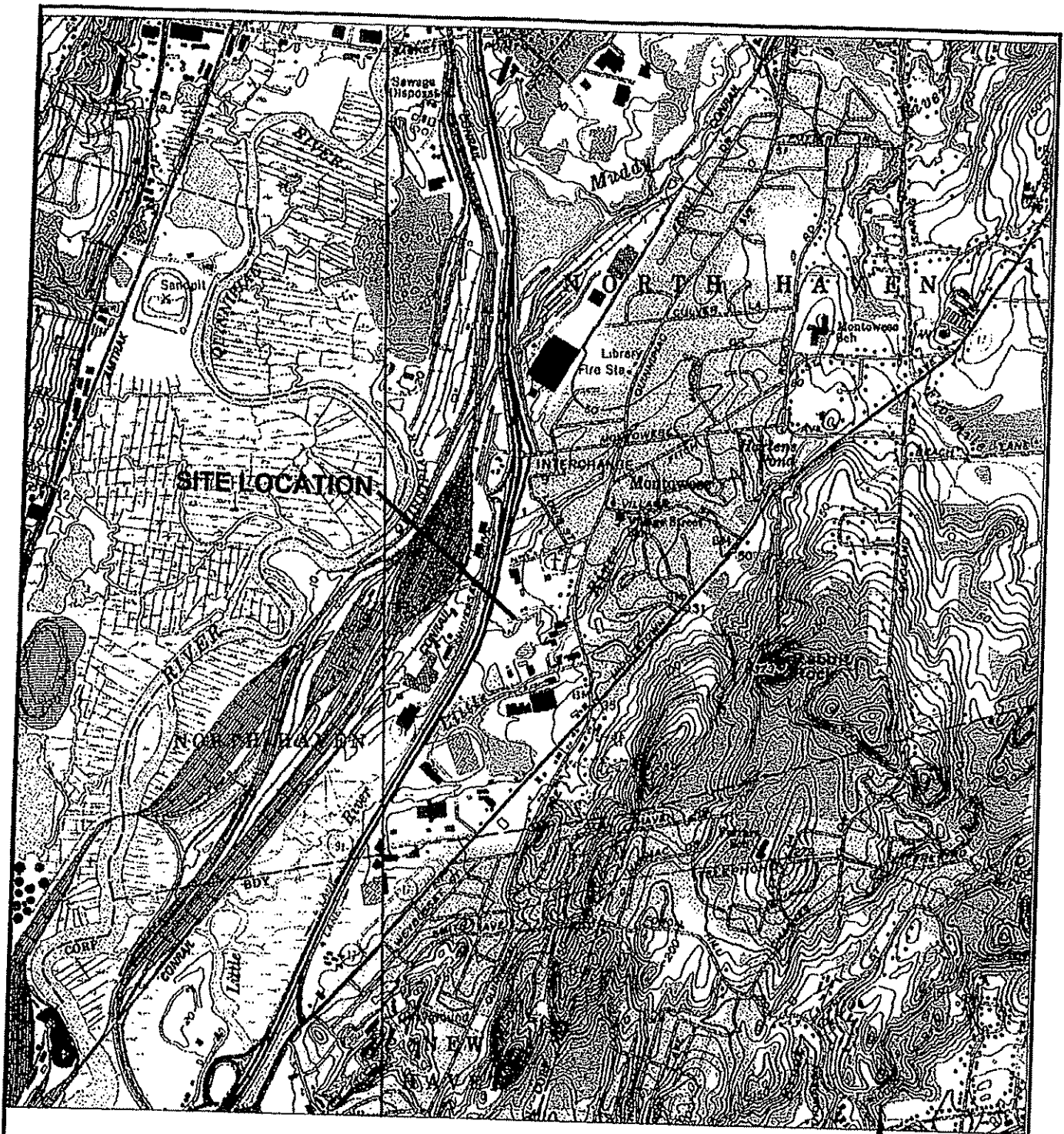
A bold indicates an accumulation of one or more criteria.

Criteria are for household exposure.

(UP) is a duplicate sample collected from B102 (B-6)

3. 4. 4. 2

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SOURCES:  
USGS 7.5 MINUTE  
TOPOGRAPHIC MAPS—  
NEW HAVEN, CT AND  
BRANFORD, CT QUADRANGLES

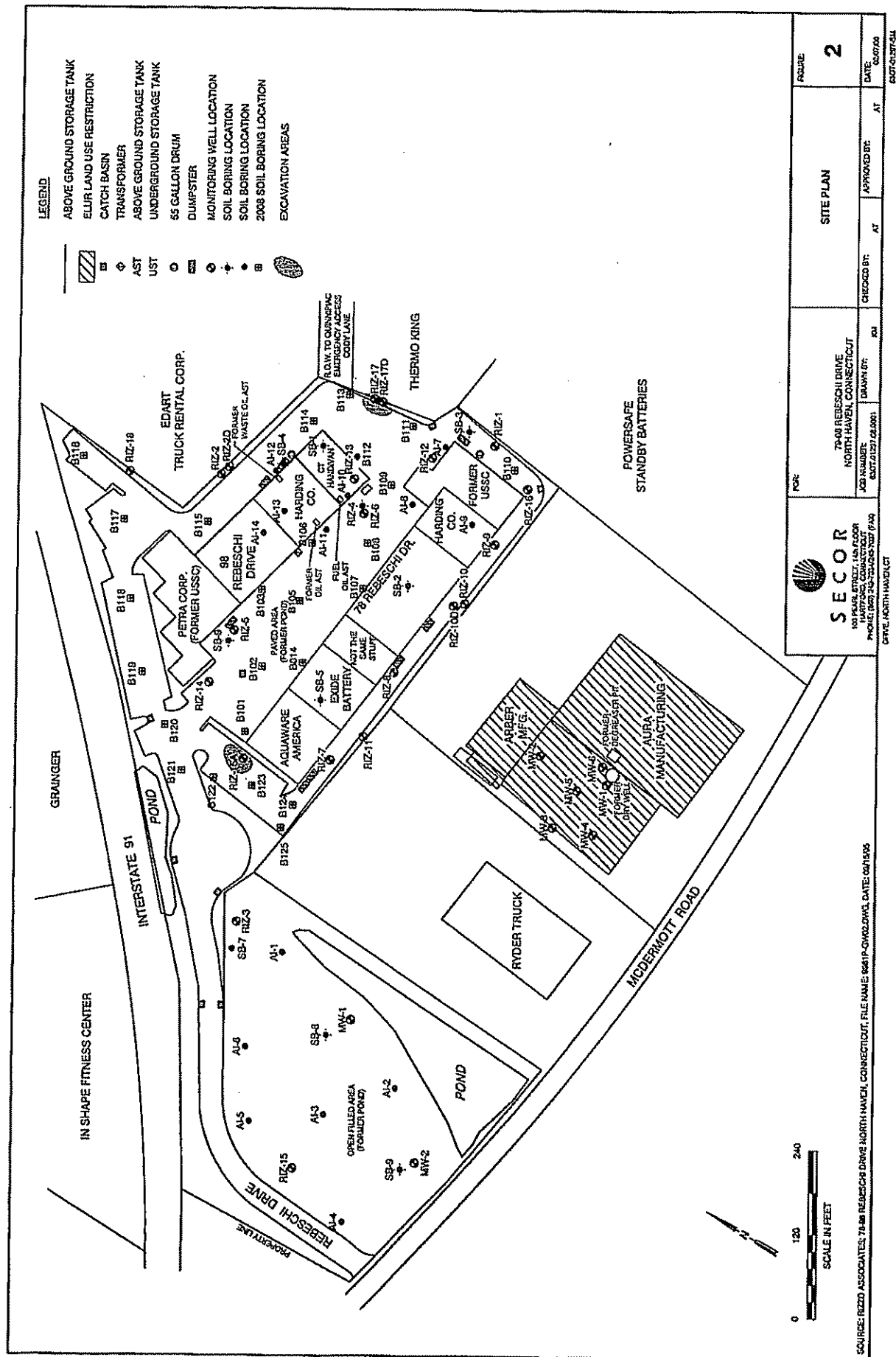


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APPROXIMATE SCALE (FEET)



 <b>SECOR</b> 100 PEARL STREET, 14TH FLOOR HARTFORD, CONNECTICUT 06103 PHONE (860) 248-7034 FAX (860) 248-7037	PREPARED FOR: <b>78-98 REBESCHI DRIVE NORTH HAVEN, CONNECTICUT</b>		FIGURE: <b>1</b>	
	JOB NUMBER: <b>630T-01297-98-0001</b>	DRAWN BY: <b>KM</b>	CHECKED BY: <b>AT</b>	APPROVED BY: <b>AT</b>

630T-01297-SLM



**B**

**QUALITY ASSURANCE PROJECT PLAN**

**78-98 Rebesch Drive  
North Haven, Connecticut**

**Task: PCB Soil Characterization  
PCB and ETPH Release Areas**

**August 14, 2008**

*Prepared by*

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**Stantec**

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## **1.0 INTRODUCTION**

The Quality Assurance Project Plan (QAPP) was designed to provide a framework for sampling soil impacted with polychlorinated biphenyls (PCBs) and extractable total petroleum hydrocarbons (ETPH) at 78-98 Rebesch Drive in North Haven, Connecticut (the site). Figure 1 is a site location map. Figure 2 is a site plan with planned sampling locations. The QAPP includes background information about the site, a summary of historical sampling data, a description of the selected sampling strategy, analytical methods, quality control procedures, and a schedule for the completion of soil sampling at the site.

## 2.0 SITE BACKGROUND

From the 1920s to late 1950s, the Site was occupied by the Montowese Brick Company. The brick company used on-site clay deposits as feed stock for the brick plant. The clay was excavated from the eastern, central, and western portions of the site creating a pond which covered most of the property. The brick plant operated a building at the western edge of 78-98 Rebesch Drive. Most of the brick plant was located off-site and in the approximate location of I-91 (adjacent to the west).

In the late 1950s, the Montowese Brick Company ended their operations and the Montowese Tool Company began operating a tool company in the building. The Montowese Tool Company operated at the western edge of the site until 1972 when the building was demolished. The remainder of the site remained as a pond until the 1980s. In the 1980s, the Elm City Construction Company filled the ponds and used the site to store sand, gravel, and rock. In 1988, Paul Rebesch purchased the site and constructed the existing light commercial and industrial buildings. The buildings have been used by a variety of tenants since construction. The United States Surgical Company (USSC) operated a small repair shop and printing facility at the site from 1988 to 1998. USSC generated small quantities of hazardous waste. As a result, the site was identified as an Establishment and subject to the Connecticut Transfer Act.

In 1995, Rizzo Associates conducted soil and groundwater sampling in connection with a real estate transfer. Rizzo Associates identified artificial fill and low levels of petroleum in the fill. During a 1995 property transfer, the certifying party filed a Form I to indicate that no releases of hazardous wastes had occurred at the site (releases of petroleum did not preclude filing of a Form I under the Transfer Act in 1995).

In 2001, an additional soil and groundwater investigation was conducted to support another property transfer. Petroleum hydrocarbons were again detected in soil and groundwater and attributed to the artificial fill. Chlorinated solvents were also detected in groundwater at the southern-side of the site. Rizzo Associates attributed the chlorinated solvents to an off-site release. The certifying party filed a Form I in connection with the 2001 property transfer since no hazardous waste releases were identified (releases of petroleum still did preclude filing a Form I under the Transfer Act in 2001).

In 2004, the DEP rejected the 2001 Form I filing due to the presence of chlorinated solvents in wells at the southern side of the site (RIZ-7, RIZ-8, RIZ-9, and RIZ-10). In response, the certifying party submitted a Form III and Environmental Condition Assessment Form (ECAF). In 2004 and 2005, Rizzo Associates conducted an additional investigation and confirmed that no on-site source of chlorinated solvents existed. The additional investigation included soil sampling, groundwater sampling, and an analysis of vertical hydraulic gradients and groundwater flow patterns for both shallow and deep groundwater. Rizzo Associates again determined that the source of chlorinated solvents was the off-site Aura/Arber/Eton Fujikura site.

Extractable total petroleum hydrocarbons (ETPH) were detected in several soil boring and well locations and is a constituent of fill materials in soil near RIZ-17/RIZ17D and RIZ-15A. A Remedial Action Plan was prepared in August 2006 to excavate the ETPH impacted material. In 2007, the soil excavation was started in the vicinity of RIZ-17/RIZ-17D. A layer of floating

product was encountered at the groundwater interface, and Stantec (formerly SECOR) determined that soil delineation was necessary before additional excavation was completed.

A waste characterization sample was collected from the excavated material and submitted for RCRA waste characterization. PCBs (below 1,000 µg/kg) were detected in the waste characterization sample. Stantec (formerly SECOR) determined that the most likely source of PCBs was historical fill used to fill the former brick yard pond.

Stantec (formerly SECOR) determined that a PCB and ETPH soil investigation was required to evaluate PCBs and ETPH in the fill material. The investigation was conducted in February 2008 and included 25 soil borings (B101 through B125).

PCBs were detected in soil collected at B101 (4-6 fbg)(34.8 µg/kg), B102 (5-6 fbg)(12 µg/kg), and B112 (8-9 fbg).(55,100 µg/kg). PCBs were below the residential Direct Exposure Criteria (res-DEC)(1,000 µg/kg) at B101 and B102, but above the res-DEC at B112. PCBs at B112 (55,100 µg/kg) were also above the threshold triggering the Toxic Substances Control Act (TSCA) self implementing work plan and remediation guidelines (50,000 µg/kg) contained in 40 CFR Part 761.

ETPH impacted soils were also identified at B101 (4-6 fbg), B102 (6-8 fbg), B105 (305 fbg), B107 (6-6.5 fbg), B108 (6-6.5 fbg), B109 (6-7 fbg), B109 (8-9 fbg), B112 (8-9 fbg), B120 (5-6 fbg), B121, B122 (4-6 fbg), B123 (4-11 fbg), B124 (6-7 fbg), and B125 (7-8 fbg). ETPH exceeded the res-DEC at B101 (4-6 fbg), B105 (3-4 fbg), B107 (6-6.5 fbg), B108 (6-6.6 fbg), B109 (7-7 fbg), B109 (8-9 fbg), B112 (8-9 fbg), B123 (4.5-5.5 fbg), B123 (10-11 fbg), and B125 (7-8 fbg). ETPH exceeded the industrial/commercial Direct Exposure Criteria (IC DEC) and GB Pollutant Mobility Criteria (GB PMC) at B105 (3-4 fbg), B112 (8-9 fbg), B123 (4.5-5.5 fbg), and B-124 (6-7 fbg).

Low levels of metals including arsenic, barium, chromium, mercury, and lead were detected in some samples at concentrations that are below the res-DEC. Metals may be partly attributable to fill constituents, but may also represent background concentrations at the concentrations that were detected.

## **Site Description**

### **2.1 Geology and Hydrogeology**

The site is located in an area underlain by alluvial fine sand, silt, clay, and gravel deposits. These materials are interbedded and form exist above sedimentary sandstone (New Haven Arkose). Bedrock is greater than 60 feet below grade.

Groundwater at the site is classified as GB groundwater, indicating groundwater known or presumed to be impacted by chemical leaks, spills, or land use impacts. The nearest surface water body is located on-site and is a small surface water pond adjacent to Rebesch Drive at the southwest-side of the site. Seasonal high groundwater ranges from 3 to 8 fbg.

Fill materials which may include ETPH and/or PCBs are anticipated below the seasonal high groundwater table. Since the res-DEC applies within 15 feet of the surface, each boring will be advanced to 15 fbg.

## **2.2 Potential Receptor Evaluation**

### **2.2.1 Water Supply Wells**

No known water supply wells exist in the vicinity of the site.

### **2.2.2 Ecological Receptor Identification**

Wetlands exist at the site and immediately adjacent to the south-side of the site. Wetlands could be considered a sensitive ecological receptor. However, no evidence was found to suggest that ETPH or PCBs have impacted the wetland. Most portions of the site are either paved or occupied by buildings. A maintained grassed area exists at the southwestern-side of the site. While soil is accessible in this area, soil is covered by vegetation. Site use in this area is infrequent.

### **2.2.3 Direct Contact**

The ETPH and PCB containing materials are buried beneath asphalt and/or concrete at depth. No excavation activities are routinely conducted at the site. As a result, the risk of inadvertent direct contact with the materials is low. The project specific health and safety plan will include provisions for minimizing direct contact with the impacted materials.

### **2.2.4 Subsurface Utilities**

Underground utilities consist of natural gas, electricity, water, and sanitary and storm sewer drains located under Rebesch Drive and between the 78 and 98 Rebesch Drive buildings. The utilities serve the site building. No evidence was found to suggest that the utilities serve as a preferential pathway for contaminant migration.

Buried utilities will be identified by a private utility locating contractor before the investigation is conducted.

### 3.0 CONCEPTUAL SITE MODEL

Stantec has developed a conceptual site model (CSM) for the site in accordance with the Connecticut Department of Environmental Protection's (DEP) guidance. The CSM provides a framework for additional site investigation and remediation at the site.

#### Petroleum Impacted Soil and Groundwater

Artificial fill which may contain ETPH and PCBs exists in the vicinity of RIZ-15A, B105, B106, and B107, and RIZ-17/RIZ-17D. These areas have been designated Zone 1, Zone 2, and Zone 3. Soil in these zones may contain ETPH and PCBs above the res-DEC and/or IC DEC. Further delineation is necessary to determine the three dimensional nature and extent of each release zone.

#### Chlorinated VOC Impacted Groundwater

The source of chlorinated solvents at 78-98 Rebesch Drive appears to be from the nearby release of chlorinated solvents at the adjacent Aura/Arber/Eton Fujikura site at 40-50 McDermott Drive. High levels of tetrachloroethene (PCE), trichloroethene (TCE), 1,1,1-trichloroethane (TCA) and related compounds remain in saturated groundwater at the Aura/Arber/Eton Fujikura site. An Environmental Land Use Restriction (ELUR) was filed for saturated soil below 4 fbg and an air sparging system was used to reduce chlorinated volatile organic compounds (VOCs) in groundwater from 1999 to 2002.

Since air sparging physically disperses contaminants, it is likely that at least some of these compounds were transported from the source area to 78-98 Rebesch Drive (the site) by dispersion. VOC migration may have also occurred as a result of Dense Non Aqueous Phase Liquid (DNAPL) transport on the confining clay layer beneath both sites. VOC migration may have also occurred by molecular diffusion.

The CSM continues to indicate that no source of chlorinated solvents exists at 78-98 Rebesch Drive.

## 4.0 QUALITY ASSURANCE PROJECT PLAN

The QAPP contains a summary of the project staff, sampling protocols, analytical methods, and quality control procedures.

Provided in the table below are the individuals involved in the completion of this remedial action listed by specific task.

Responsible Individual	Telephone Number	Task Responsible
John Insall, LEP - Stantec	(860) 948-1628	Project Director
Anthony Koval - Stantec	(860) 948-1628	Project Manager
Martha Lemmon - Stantec	(860) 948-1628	Site Manager

### 4.1 Analytical Method/Quality Assurance

The soil delineation project includes the collection of soil samples from each zone. The sampling requirements, including matrix, frequency of collection, analytical parameter, analytical method, sample preservation, sample container volume and type, and holding time is provided in the Analytical Methods/Quality Assurance summary table below.

Matrix Type	No. of Samples	No. of Trip/ Field Blanks	Analytical Parameter	Analytical Method	Sample Preservation	Sample Container	Sample Holding Time
Zone 1 Soil		1/1	PCBs and ETPH	USEPA Method 8082 (3540C Extraction) and ETPH	Cool 4° C	4 oz. amber jar	14 Days
Zone 2 Soil		1/1	PCBs and ETPH	USEPA Method 8082 (3540C Extraction) and ETPH	Cool 4° C	4 oz. amber jar	14 Days
Zone 3 Soil		1/1	PCBs and ETPH	USEPA Method 8082 (3540C Extraction) and ETPH	Cool 4° C	4 oz. amber jar	14 Days

In zones 1 and 2, and part of Zone 3, soil borings will be spaced 35-40 feet on center to address Transfer Act site characterization requirements. In zone 3, soil borings will be positioned 10 feet on center in the TSCA regulated area. In the Transfer Act regulated area of Zone 3, two selected soil borings will be collected from each boring and analyzed for PCBs by EPA method 3540C and ETPH. Soils selected for analysis will be based on field screening results. In the Transfer Act regulated areas of Zones 1 and 2, we anticipate that the soil borings will be collected when impacted soil becomes evident and below the saturated groundwater zone where it appears the release diminishes (2 samples per boring). Since the DEC applies to 15 fbg, each boring will be advanced to 15 fbg. In the TSCA regulated areas, soil samples will be collected every other foot from the surface to 15 fbg (7 samples per boring) and analyzed for PCBs by EPA Method 3540C. Two selected soil samples per boring in the TSCA

regulated area will also be submitted for ETPH. These soil samples will be based on field screening results and designed to delineate the volume of ETPH impacted soil in this area. In summary, the following breakdown of samples is anticipated:

- ZONE 1 = 26 borings x 2 samples per boring (52 samples total) for PCBs and ETPH.
- ZONE 2 = 25 borings x 2 samples per boring (50 samples total ) for PCBs and ETPH.
- ZONE 3 (non TSCA area) = 12 borings x 2 samples per boring (24 samples total) for PCBs and ETPH.
- ZONE 3 (TSCA regulated) = 42 borings x 7 samples per boring (294 samples total) for PCBs; and 2 samples per boring for ETPH (84 samples).

#### **4.2 Sampling Methodology**

Soil samples will be collected using a direct push Geoprobe. Soil will be collected from the appropriate sampling interval using disposable scoops. Soil from the representative depth will be homogenized in disposable paper bowls. Each sample will be homogenized in new and uncontaminated scoops and bowls before being transferred into laboratory glassware. Samples will be labeled and recorded on a Chain of Custody (COC) on a daily basis.

Soil descriptions will be recorded in the field and note field screening results with a photoionization detector (PID), staining, grain characteristics, and the presence of fill materials.

Prior to delivery to the laboratory, soil will be stored on ice at 4 degrees Celsius.

All soil samples will be collected using the CT DEP soil sampling guidance document dated February 2006.

After each soil boring has been completed, borings will be backfilled with soil cuttings and the surface will be repaired with asphalt patch or concrete, as appropriate.

Soil will be delivered to the lab for PCB and ETPH analyses using extraction method 3540C.

#### **4.3 Equipment Summary**

The following mechanical equipment will be utilized during the field work associated with the proposed remedial action: a PID equipped with a 10.7 eV lamp, a water depth probe, and the appropriate sampling apparatus. All non-disposable equipment will be cleaned between sampling locations using Alconox detergent, water rinse, hexane rinse, and water rinse. Investigation derived wastes will be containerized pending off-site disposal.

Other equipment will be operated in accordance with the manufacturer specification, including calibration of all field instruments, which is performed prior to the initiation of field work and on a schedule indicated by the manufacturer.

#### **4.4 Laboratory Summary**

All samples collected as part of this scope of work will be analyzed by Spectrum Analytical, Inc. of Agawam, Massachusetts. Spectrum is a NELAC accredited laboratory and holds Connecticut Laboratory certification PH-0777.

All lab analyses will be conducted with the use of Reasonable Confidence Protocols (RCPs) to ensure laboratory data quality.



## **5.0 PROPOSED SCHEDULE**

The soil investigation is planned from August 20, 2008 to September 5, 2008. Soil samples will be analyzed on a standard ten day turn around schedule. Analytical results will be available September 3-19<sup>th</sup>, 2008.



**APPENDIX A**  
**PCB SOIL INVESTIGATION REPORT**  
**78-98 REBESCHI DRIVE**  
**NORTH HAVEN, CONNECTICUT**

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## **PCB SOIL INVESTIGATION REPORT**

**78-98 Rebesch Drive  
North Haven, Connecticut 06108**

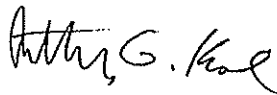
**SECOR PN: 63OT.01297.08/0001**

**Submitted by:  
Stantec Consulting Services, Inc.  
20 Church Street  
Suite 1710  
Hartford, Connecticut 06103**

**Prepared for:  
Winstanley Enterprises LLC  
150 Baker Avenue Extension  
Suite 303  
Concord, MA 01742**

**June 19, 2008**

**Prepared by:**



**Anthony Koval  
Scientist**

**Reviewed by:**



**John Insall, L.E.P.  
Senior Project Manager**

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## **FIGURES**

- Figure 1 Site Location Map  
Figure 2 Site Map

## **TABLES**

- Table 2 Soil Analytical Data

## **APPENDICES**

- APPENDIX A: Laboratory Analytical Data

## 1.0 EXECUTIVE SUMMARY

Stantec Consulting Services, Inc. (formerly SECOR), is pleased to present the findings of our PCB soil investigation at 78-98 Rebesch Drive in North Haven, Connecticut.

The soil investigation was performed to provide additional site characterization data for PCBs in fill materials in the unsaturated soil zone across the site. The investigation included the installation of 23 additional soil borings to saturated groundwater. Soil screening in the field, and soil analysis for PCBs using EPA Method 3540C. During the investigation, selected soil samples were also analyzed for extractable total petroleum hydrocarbons (ETPH) and poly aromatic hydrocarbons (PAH) by EPA Method 8270 and total 8 Resource Conservation and Recovery Act (RCRA) metals. The soil samples selected for additional analyses were selected based on field screening results and visual appearance of soils.

PCBs were detected in soil collected at B101 (4-6 fbg)(34.8 µg/kg), B102 (5-6 fbg)(12 µg/kg), and B112 (8-9 fbg).(55,100 µg/kg). PCBs were below the residential Direct Exposure Criteria (res-DEC)(1,000 µg/kg) at B101 and B102, but above the res-DEC at B112. PCBs at B112 (55,100 µg/kg) were also above the threshold triggering the Toxic Substances Control Act (TSCA) self implementing work plan and remediation guidelines (50,000 µg/kg) contained in 40 CFR Part 761. As a result, remediation of the release will require EPA review and approval of the remedial work plan.

ETPH impacted soils were also identified at B101 (4-6 fbg), B102 (6-8 fbg), B105 (305 fbg), B107 (6-6.5 fbg), B108 (6-6.5 fbg), B109 (6-7 fbg), B109 (8-9 fbg), B112 (8-9 fbg), B120 (5-6 fbg), B121, B122 (4-6 fbg), B123 (4-11 fbg), B124 (6-7 fbg), and B125 (7-8 fbg). ETPH exceeded the res-DEC at B101 (4-6 fbg), B105 (3-4 fbg), B107 (6-6.5 fbg), B108 (6-6.6 fbg), B109 (7-7 fbg), B109 (8-9 fbg), B112 (8-9 fbg), B123 (4.5-5.5 fbg), B123 (10-11 fbg), and B125 (7-8 fbg). ETPH exceeded the industrial/commercial Direct Exposure Criteria (IC DEC) and GB Pollutant Mobility Criteria (GB PMC) at B105 (3-4 fbg), B112 (8-9 fbg), B123 (4.5-5.5 fbg), and B-124 (6-7 fbg).

Low levels of metals including arsenic, barium, chromium, mercury, and lead were detected in some samples at concentrations that are below the res-DEC. Metals may be partly attributable to fill constituents, but may also represent background concentrations at the concentrations that were detected.

### Conclusions

The data suggest that ETPH exceeds the res-DEC in many locations across the site. ETPH appears to be a constituent of fill materials. Potential response actions may include soil excavation combined with the use of an Environmental Land Use Restriction to render some soils inaccessible and environmentally isolated.

Additional soil characterization is required under 40 CFR Part 761.265 using a three meter sampling grid in each PCB detection area. The sampling protocol must meet the sampling frequency for each release area of at least 3 samples and provide coverage in all directions to adequately characterize each area as outlined in 40 CFR Part 761.283.

Additional soil sampling is also required under the Transfer Act and Remediation Standard Regulations (RSRs) to characterize the extent of ETPH in soils.

## **2.0 PHASE II PRELIMINARY ACTIVITIES**

SECOR conducted the advancement of 23 soil borings in areas of concern identified at the site.

Prior to soil boring and monitoring well installation, SECOR contacted Call Before You Dig to obtain a utility clearance for well and boring locations. SECOR was issued ticket number 20080301792.

### **3.0 SOIL CHARACTERIZATION SCOPE OF WORK**

The soil investigation was performed to provide additional site characterization data for PCBs in fill materials in the unsaturated soil zone across the site. The investigation included the installation of 23 additional soil borings to saturated groundwater. Soil screening in the field, and soil analysis for PCBs using EPA Method 3540C. During the investigation, selected soil samples were also analyzed for extractable total petroleum hydrocarbons (ETPH) and poly aromatic hydrocarbons (PAH) by EPA Method 8270 and total 8 Resource Conservation and Recovery Act (RCRA) metals. The soil samples selected for additional analyses were selected based on field screening results and visual appearance of soils.

The borings were advanced with a truck mounted Geoprobe. Each boring was backfilled with sand and native soil materials and finished at the surface with asphalt upon completion.



#### **4.0 SOIL SAMPLING**

Twenty three soil borings were advanced using truck mounted geoprobe on January 24 and 25, 2008. Soil at each location was screened continuously from the surface to saturated groundwater with a calibrated PID equipped with a 11.7 eV lamp. Soil staining was observed at B101, B105, B107, B108, B109, B112, B123, B124, and B125. Soil staining was most pronounced immediately above the saturated groundwater zone at 7-8 feet. However, some shallower soil staining was also observed. Slightly elevated PID recordings were recorded in these locations.

Soil samples were collected and preserved in the field in accordance with the DEP's soil sample preservation guidelines dated March 2006 and submitted to the laboratory for PCB analysis by EPA Method 3540C. After soil sample collection, each sample was stored on ice in a cooler. After soil sampling was completed, the soil samples were transferred under Chain of Custody and stored in a sample refrigerator until transported to the laboratory for analysis. All soil samples were analyzed using the DEP's Reasonable Confidence Protocols (RCPs).

Soil sampling and monitoring well locations are presented on Figure 2 and soil analytical results are presented in Table 1.

## 5.0 SOIL SAMPLING RESULTS

PCBs were detected in soil collected at B101 (4-6 fbg)(34.8 µg/kg), B102 (5-6 fbg)(12 µg/kg), and B112 (8-9 fbg).(55,100 µg/kg). PCBs were below the residential Direct Exposure Criteria (res-DEC)(1,000 µg/kg) at B101 and B102, but above the res-DEC at B112. PCBs at B112 (55,100 µg/kg) were also above the threshold triggering the Toxic Substances Control Act (TSCA) self implementing work plan and remediation guidelines (50,000 µg/kg) contained in 40 CFR Part 761. As a result, remediation of the release will require EPA review and approval of the remedial work plan.

ETPH impacted soils were also identified at B101 (4-6 fbg), B102 (6-8 fbg), B105 (305 fbg), B107 (6-6.5 fbg), B108 (6-6.5 fbg), B109 (6-7 fbg), B109 (8-9 fbg), B112 (8-9 fbg), B120 (5-6 fbg), B121, B122 (4-6 fbg), B123 (4-11 fbg), B124 (6-7 fbg), and B125 (7-8 fbg). ETPH exceeded the res-DEC at B101 (4-6 fbg), B105 (3-4 fbg), B107 (6-6.5 fbg), B108 (6-6.6 fbg), B109 (7-7 fbg), B109 (8-9 fbg), B112 (8-9 fbg), B123 (4.5-5.5 fbg), B123 (10-11 fbg), and B125 (7-8 fbg). ETPH exceeded the industrial/commercial Direct Exposure Criteria (IC DEC) and GB Pollutant Mobility Criteria (GB PMC) at B105 (3-4 fbg), B112 (8-9 fbg), B123 (4.5-5.5 fbg), and B-124 (6-7 fbg).

Low levels of metals including arsenic, barium, chromium, mercury, and lead were detected in some samples at concentrations that are below the res-DEC. Metals may be partly attributable to fill constituents, but may also represent background concentrations at the concentrations that were detected.

## **6.0 DATA REVIEW**

SECOR reviewed the data package provided by the laboratory for each sample lot. The data review was intended to ensure that the data meet data quality objectives set by the DEP in guidance documents including the use of RCPs and soil preservation techniques outlined in the DEP guidance document dated March 6, 2006. Our data review also included a review of laboratory duplicates, matrix spike samples, and the RCP narrative.

- No significant data quality issues were identified during the review. The laboratory reported that the data meet the RCP protocols for each set of samples submitted for analysis.
- In addition, no significant deviations in analytical methods, sampling handling, or chain of custody were identified.

## **7.0 CONCLUSIONS**

The data suggest that ETPH exceeds the res-DEC in many locations across the site. ETPH appears to be a constituent of fill materials. Potential response actions may include soil excavation combined with the use of an Environmental Land Use Restriction to render some soils inaccessible and environmentally isolated.

Additional soil characterization is required under 40 CFR Part 761.265 using a three meter sampling grid in each PCB detection area. The sampling protocol must meet the sampling frequency for each release area of at least 3 samples and provide coverage in all directions to adequately characterize each area as outlined in 40 CFR Part 761.283.

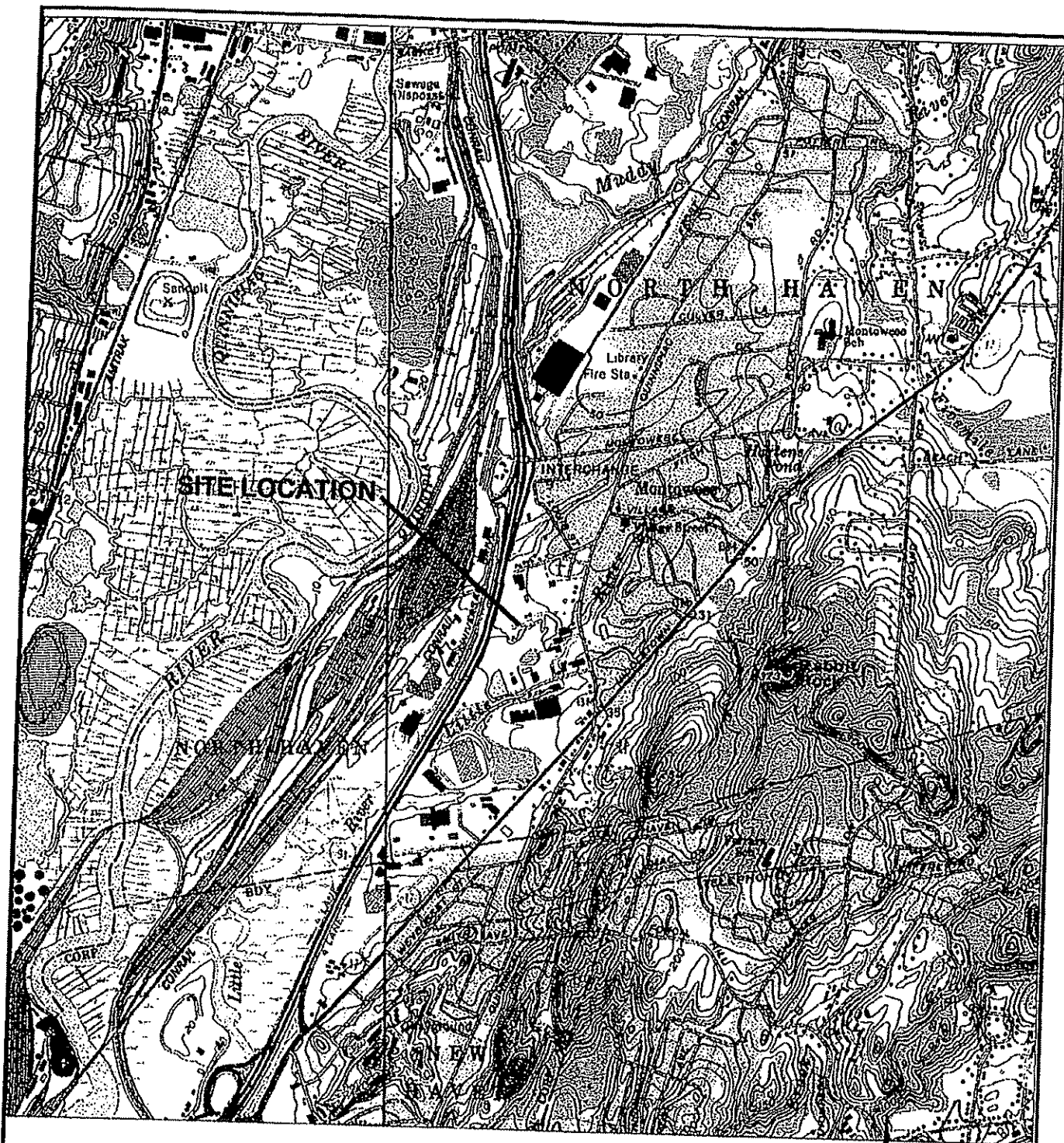
Additional soil sampling is also required under the Transfer Act and Remediation Standard Regulations (RSRs) to characterize the extent of ETPH in soils.

**Table 1**

**Notes:**

mHg = micrograms per kilogram mEq - milligrams per kilogram  
mEq/kg = Not analyzed HE - No Established Criteria or not applicable  
mEq/kg DEC - Residential Direct Exposure Criteria  
mEq/kg DEC - Industrial/Commercial/Direct Exposure Criteria  
TANMCMC - Class C3 Pollutant Mobility Criteria  
TANMCMC - Class G3 Pollutant Mobility Criteria  
TANMCMC - Class G3 Pollutant Mobility Criteria  
Bold indicates an exceedance of one or more criteria.  
Criteria for hexachlorobiphenyls  
DUP is a duplicate sample collected from TUCO (PUL)






SOURCES:  
USGS 7.5 MINUTE  
TOPOGRAPHIC MAPS--  
NEW HAVEN, CT AND  
BRANFORD, CT QUADRANGLES

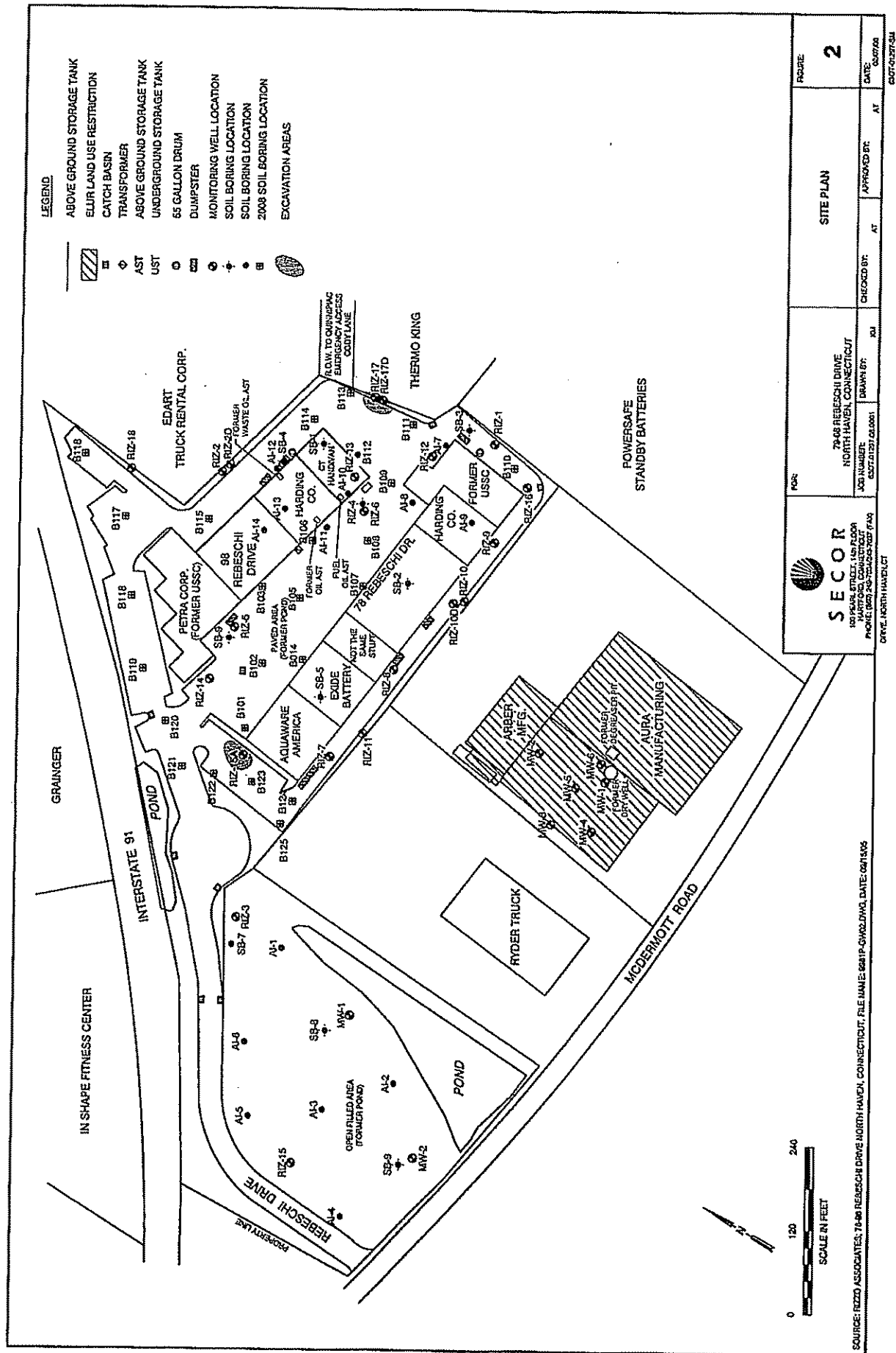


0 2000 4000  
APPROXIMATE SCALE (FEET)



 <b>SECOR</b> 100 PEARL STREET, 14TH FLOOR HARTFORD, CONNECTICUT 06103 PHONE (860) 249-7034 FAX (860) 249-7037	PREPARED FOR: <b>78-98 REBESCHI DRIVE NORTH HAVEN, CONNECTICUT</b>		FIGURE: <b>1</b>	
	JOB NUMBER: <b>63QT.01297.00.0001</b>	DRAWN BY: <b>KM</b>	CHECKED BY: <b>AT</b>	APPROVED BY: <b>AT</b>

63QT-01297-SLM





**C**

**Certification**

**August 3, 2010**

Ms. Kimberley N. Tisa  
PCB Coordinator/Environmental Scientist  
Office of Site Remediation and Restoration  
US EPA Region 1  
1 Congress Street, Suite 1100 (CPT)  
Boston, MA 02114-2023

**Dear Ms. Tisa:**


As required by 40 CFR Part 761.61 (a)(3)(E), Andrew Dixon (the property owner) and WEI North Haven Limited Partnership (the responsible party) are pleased to provide the following certification:

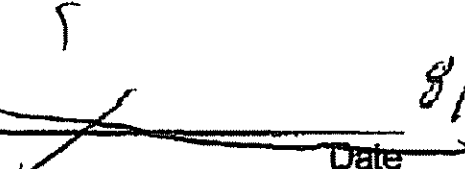
*All sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup site, are on file at:*

**Stantec Consulting Services, Inc.  
20 Church Street  
Hartford, Connecticut 06103**

*and are available for EPA inspection. All analytical methods used for site characterization meet EPA extraction and analytical methodologies.*

The following parties certify that the foregoing is accurate and true on this 3<sup>rd</sup> Day of August 2010.

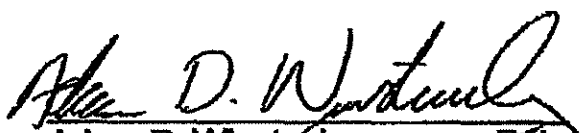
  
\_\_\_\_\_  
Andrew Dixon  
Property Owner


  
\_\_\_\_\_  
Date

8/3/10

WEI North Haven Limited Partnership

By: Winstanley Enterprises, Inc.  
Its General Partner

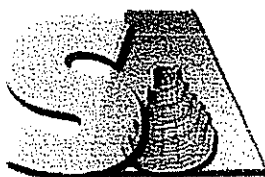
By:   
\_\_\_\_\_  
Adam D. Winstanley  
Its Treasurer

  
\_\_\_\_\_  
Date

8/3/10

**D**

Report Date:  
03-May-10 09:05



**SPECTRUM ANALYTICAL, INC.**  
*Featuring*  
**HANIBAL TECHNOLOGY**  
**Laboratory Report**

- ☒ Final Report  
☐ Re-Issued Report  
☐ Revised Report

Stantec Consulting Services  
20 Church Street, Suite 1710  
Hartford, CT 06103  
Attn: John Insall

Project: 78-98 Rebesch Dr. - North Haven, CT  
Project #: [none]

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB11046-01	RIZ-6	Ground Water	21-Apr-10 13:05	23-Apr-10 16:40
SB11046-02	RIZ-15A	Ground Water	21-Apr-10 16:45	23-Apr-10 16:40
SB11046-03	Dup-1	Ground Water	21-Apr-10 14:05	23-Apr-10 16:40
SB11046-04	RIZ-17	Ground Water	22-Apr-10 16:25	23-Apr-10 16:40
SB11046-05	Trip Blank	Deionized Water	22-Apr-10 00:00	23-Apr-10 16:40

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.  
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110  
Connecticut # PH-0777  
Florida # E87600/E87936  
Maine # MA138  
New Hampshire # 2538  
New Jersey # MA011/MA012  
New York # 11393/11840  
Pennsylvania # 68-04426/68-02924  
Rhode Island # 98  
USDA # S-51435  
Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D.  
President/Laboratory Director

Technical Reviewer's Initial:

Spectrum Analytical holds certification in the State of New York for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of New York does not offer certification for all analytes.  
Please note that this report contains 35 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

*Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at [www.spectrum-analytical.com](http://www.spectrum-analytical.com) for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).*

*Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.*

## CASE NARRATIVE:

The samples were received 2.2 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

Required site-specific Matrix Spike/Matrix Spike Duplicate (MS/MSD) must be requested by the client and sufficient sample must be submitted for the additional analyses. Samples submitted with insufficient volume/weight will not be analyzed for site specific MS/MSD, however a batch MS/MSD may be analyzed from a non-site specific sample.

CTDEP has published a list of analytical methods which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of decisions being made utilizing the Reasonable Confidence Protocol (RCP). "Reasonable Confidence" can be established only for those methods published by the CTDEP in the RCP guidelines. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may not include the full analyte list as defined in the method.

The CTDEP RCP requests that "all non-detects and all results below the reporting limit are reported as ND (Not Detected at the Specified Reporting Limit)". All non-detects and all results below the reporting limit are reported as "BRL" (Below the Reporting Limit) in this report.

If no reporting limits were specified or referenced on the chain-of-custody the laboratory's practical quantitation limits were applied.

Tetrachloro-m-xylene is recommended as a surrogate by the CTDEP RCP for the following SW846 Methods 8081, 8082 and 8151. Spectrum Analytical, Inc. uses Tetrachloro-m-xylene as the Internal Standard for these methods and Dibromooctafluorobiphenyl as the surrogate.

According to CTDEP RCP Quality Assurance and Quality Control Requirements for VOCs by method 8260, SW-846 version 1, 7/28/05 Table 1A, recovery for some VOC analytes have been deemed potentially difficult. Although they may still be within the recommended 70%-130% recovery range, a range has been set based on historical control limits.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

### SW846 8260B

#### Calibration:

1004048

Analyte quantified by quadratic equation type calibration.

Bromoform

This affected the following samples:

1009099-BLK1

1009099-BS1

1009099-BSD1

Dup-1

RIZ-17

RIZ-6

S003796-CCV1

#### Spikes:

1008989-MS1

Source: SB11046-02

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\* Reportable Detection Limit      BRL = Below Reporting Limit

**SW846 8260B**

**Spikes:**

1008989-MS1

Source: SB11046-02

The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

1,1,2,2-Tetrachloroethane  
1,2,3-Trichlorobenzene  
1,2,4-Trichlorobenzene  
1,2,4-Trimethylbenzene  
1,3,5-Trichlorobenzene  
1,3,5-Trimethylbenzene  
1,3-Dichlorobenzene  
2-Chlorotoluene  
4-Chlorotoluene  
4-Isopropyltoluene  
Bromomethane  
Chloromethane  
Hexachlorobutadiene  
Isopropylbenzene  
n-Butylbenzene  
n-Propylbenzene  
sec-Butylbenzene  
Styrene  
tert-Butylbenzene  
Tetrachloroethene

1008989-MSD1

Source: SB11046-02

The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.

Chloroethane

The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

1,1,2,2-Tetrachloroethane  
1,2,3-Trichlorobenzene  
1,2,4-Trichlorobenzene  
1,2,4-Trimethylbenzene  
1,3,5-Trichlorobenzene  
1,3,5-Trimethylbenzene  
1,3-Dichlorobenzene  
4-Chlorotoluene  
4-Isopropyltoluene  
Bromomethane  
Hexachlorobutadiene  
Isopropylbenzene  
Naphthalene  
n-Butylbenzene  
n-Propylbenzene  
o-Xylene  
sec-Butylbenzene  
Styrene  
tert-Butylbenzene  
Tetrachloroethene

**Samples:**

S003767-CCV1

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\* Reportable Detection Limit

BRL = Below Reporting Limit

**SW846 8260B**

**Samples:**

**S003767-CCV1**

---

Analyte percent difference is outside individual acceptance criteria, but within overall method allowances.

Chloromethane (-20.5%)

This affected the following samples:

1008989-BLK1

1008989-BS1

1008989-BSD1

1008989-MS1

1008989-MSD1

RIZ-15A

Trip Blank

---

**S003796-CCV1**

---

Analyte percent difference is outside individual acceptance criteria, but within overall method allowances.

1,1,1,2-Tetrachloroethane (26.4%)

Dibromochloromethane (27.1%)

Naphthalene (20.7%)

trans-1,4-Dichloro-2-butene (20.6%)

Vinyl chloride (-29.3%)

This affected the following samples:

1009099-BLK1

1009099-BS1

1009099-BSD1

Dup-1

RIZ-17

RIZ-6

---

SB11046-01

*RIZ-6*

---

The Reporting Limits for this analysis are elevated due to sample foaming.

SB11046-02

*RIZ-15A*

---

This sample was not able to be analyzed for client requested reporting limits due to high concentrations of target analytes in the sample.

Sample Identification

RIZ-6

SB11046-01

Client Project #

[none]

Matrix

Ground Water

Collection Date/Time

21-Apr-10 13:05

Received

23-Apr-10

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
<b>Volatile Organic Compounds</b>												
<u>Volatile Organic Compounds</u>												
<u>Prepared by method SW846 5030 Water MS</u>												
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	BRL		µg/l	5.0	5	SW846 8260B	30-Apr-10	30-Apr-10	JLG	1009099	X
67-64-1	Acetone	BRL		µg/l	50.0	5	"	"	"	"	"	X
107-13-1	Acrylonitrile	BRL		µg/l	2.5	5	"	"	"	"	"	X
71-43-2	Benzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
106-86-1	Bromobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
74-97-5	Bromochloromethane	BRL		µg/l	5.0	5	"	"	"	"	"	X
75-27-4	Bromodichloromethane	BRL		µg/l	2.5	5	"	"	"	"	"	X
75-25-2	Bromoform	BRL		µg/l	5.0	5	"	"	"	"	"	X
74-83-9	Bromomethane	BRL		µg/l	10.0	5	"	"	"	"	"	X
78-93-3	2-Butanone (MEK)	BRL		µg/l	50.0	5	"	"	"	"	"	X
104-61-8	n-Butylbenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
135-98-8	sec-Butylbenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
98-06-6	tert-Butylbenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
75-15-0	Carbon disulfide	BRL		µg/l	10.0	5	"	"	"	"	"	X
66-23-5	Carbon tetrachloride	BRL		µg/l	5.0	5	"	"	"	"	"	X
108-90-7	Chlorobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
75-00-3	Chloroethane	BRL		µg/l	10.0	5	"	"	"	"	"	X
67-66-3	Chloroform	BRL		µg/l	5.0	5	"	"	"	"	"	X
74-87-3	Chloromethane	BRL		µg/l	10.0	5	"	"	"	"	"	X
95-49-8	2-Chlorotoluene	BRL		µg/l	5.0	5	"	"	"	"	"	X
106-43-4	4-Chlorotoluene	BRL		µg/l	5.0	5	"	"	"	"	"	X
96-12-8	1,2-Dibromo-3-chloropropane	BRL		µg/l	10.0	5	"	"	"	"	"	X
124-48-1	Dibromochloromethane	BRL		µg/l	2.5	5	"	"	"	"	"	X
106-93-4	1,2-Dibromoethane (EDB)	BRL		µg/l	2.5	5	"	"	"	"	"	X
74-95-3	Dibromomethane	BRL		µg/l	5.0	5	"	"	"	"	"	X
95-50-1	1,2-Dichlorobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
541-73-1	1,3-Dichlorobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
106-46-7	1,4-Dichlorobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
75-71-8	Dichlorodifluoromethane (Freon12)	BRL		µg/l	10.0	5	"	"	"	"	"	X
75-34-3	1,1-Dichloroethane	BRL		µg/l	5.0	5	"	"	"	"	"	X
107-06-2	1,2-Dichloroethane	BRL		µg/l	5.0	5	"	"	"	"	"	X
75-35-4	1,1-Dichloroethene	BRL		µg/l	5.0	5	"	"	"	"	"	X
158-59-2	cis-1,2-Dichloroethene	BRL		µg/l	5.0	5	"	"	"	"	"	X
158-60-5	trans-1,2-Dichloroethene	BRL		µg/l	5.0	5	"	"	"	"	"	X
78-87-5	1,2-Dichloropropane	BRL		µg/l	5.0	5	"	"	"	"	"	X
142-28-9	1,3-Dichloropropane	BRL		µg/l	5.0	5	"	"	"	"	"	X
594-20-7	2,2-Dichloropropane	BRL		µg/l	5.0	5	"	"	"	"	"	X
563-58-6	1,1-Dichloropropene	BRL		µg/l	5.0	5	"	"	"	"	"	X
10061-01-5	cis-1,3-Dichloropropene	BRL		µg/l	2.5	5	"	"	"	"	"	X
10061-02-6	trans-1,3-Dichloropropene	BRL		µg/l	2.5	5	"	"	"	"	"	X
100-41-4	Ethylbenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
87-68-3	Hexachlorobutadiene	BRL		µg/l	2.5	5	"	"	"	"	"	X
591-78-6	2-Hexanone (MBK)	BRL		µg/l	50.0	5	"	"	"	"	"	X
98-82-8	Isopropylbenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X

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\* Reportable Detection Limit BRL = Below Reporting Limit



Sample Identification

RIZ-6

SB11046-01

Client Project #

[none]

Matrix

Ground Water

Collection Date/Time

21-Apr-10 13:05

Received

23-Apr-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
<b>Volatile Organic Compounds</b>												
<u>Volatile Organic Compounds</u>												
<u>Prepared by method SW846 5030 Water MS</u>												
99-87-6	4-Isopropyltoluene	BRL		µg/l	5.0	5	SW846 8200B	30-Apr-10	30-Apr-10	JLG	1009099	X
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	5.0	5	"	"	"	"	"	X
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL		µg/l	50.0	5	"	"	"	"	"	X
75-09-2	Methylene chloride	BRL		µg/l	10.0	5	"	"	"	"	"	X
91-20-3	Naphthalene	BRL		µg/l	5.0	5	"	"	"	"	"	X
103-65-1	n-Propylbenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
100-42-5	Styrene	BRL		µg/l	5.0	5	"	"	"	"	"	X
630-20-6	1,1,1,2-Tetrachloroethane	BRL		µg/l	5.0	5	"	"	"	"	"	X
79-34-5	1,1,2,2-Tetrachloroethane	BRL		µg/l	2.5	5	"	"	"	"	"	X
127-18-4	Tetrachloroethene	BRL		µg/l	5.0	5	"	"	"	"	"	X
108-88-3	Toluene	BRL		µg/l	5.0	5	"	"	"	"	"	X
87-61-6	1,2,3-Trichlorobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
120-82-1	1,2,4-Trichlorobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
108-70-3	1,3,5-Trichlorobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
71-55-6	1,1,1-Trichloroethane	BRL		µg/l	5.0	5	"	"	"	"	"	X
79-00-5	1,1,2-Trichloroethane	BRL		µg/l	5.0	5	"	"	"	"	"	X
79-01-6	Trichloroethene	BRL		µg/l	5.0	5	"	"	"	"	"	X
75-89-4	Trichlorofluoromethane (Freon 11)	BRL		µg/l	5.0	5	"	"	"	"	"	X
98-18-4	1,2,3-Trichloropropane	BRL		µg/l	5.0	5	"	"	"	"	"	X
95-83-8	1,2,4-Trimethylbenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
108-67-8	1,3,5-Trimethylbenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
75-01-4	Vinyl chloride	BRL		µg/l	5.0	5	"	"	"	"	"	X
179601-23-1	m,p-Xylene	BRL		µg/l	10.0	5	"	"	"	"	"	X
95-47-6	o-Xylene	BRL		µg/l	5.0	5	"	"	"	"	"	X
109-89-9	Tetrahydrofuran	BRL		µg/l	10.0	5	"	"	"	"	"	X
60-29-7	Ethyl ether	BRL		µg/l	5.0	5	"	"	"	"	"	X
994-05-8	Tert-amyl methyl ether	BRL		µg/l	5.0	5	"	"	"	"	"	X
637-92-3	Ethyl tert-butyl ether	BRL		µg/l	5.0	5	"	"	"	"	"	X
108-20-3	Diisopropyl ether	BRL		µg/l	5.0	5	"	"	"	"	"	X
75-65-0	Tert-Butanol / butyl alcohol	BRL		µg/l	50.0	5	"	"	"	"	"	X
123-91-1	1,4-Dioxane	BRL		µg/l	100	5	"	"	"	"	"	X
110-57-6	trans-1,4-Dichloro-2-butene	BRL		µg/l	25.0	5	"	"	"	"	"	X
64-17-5	Ethanol	BRL		µg/l	2000	5	"	"	"	"	"	X

Surrogate recoveries:

460-00-4	4-Bromofluorobenzene	86	70-130 %	"	"	"	"	"	"	"	"	"
2037-28-6	Toluene-d8	102	70-130 %	"	"	"	"	"	"	"	"	"
17060-07-0	1,2-Dichloroethane-d4	104	70-130 %	"	"	"	"	"	"	"	"	"
1868-53-7	Dibromofluoromethane	105	70-130 %	"	"	"	"	"	"	"	"	"

Semivolatile Organic Compounds by GCPolychlorinated Biphenyls by SW846 8082Prepared by method SW846 3510C

12674-11-2	Aroclor-1018	BRL		µg/l	0.208	1	SW846 8082	27-Apr-10	28-Apr-10	IMR	1008734	X
11104-28-2	Aroclor-1221	BRL		µg/l	0.208	1	"	"	"	"	"	X
11141-16-5	Aroclor-1232	BRL		µg/l	0.208	1	"	"	"	"	"	X

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\* Reportable Detection Limit      BRL = Below Reporting Limit

Page 6 of 35

Sample Identification

RIZ-6

SB11046-01

Client Project #

[none]

Matrix

Ground Water

Collection Date/Time

21-Apr-10 13:05

Received

23-Apr-10

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3510C</u>												
53469-21-9	Aroclor-1242	BRL		µg/l	0.208	1	SW846 8082	27-Apr-10	28-Apr-10	IMR	1008734	X
12672-29-6	Aroclor-1248	BRL		µg/l	0.208	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	BRL		µg/l	0.208	1	"	"	"	"	"	X
11098-82-5	Aroclor-1260	BRL		µg/l	0.208	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	BRL		µg/l	0.208	1	"	"	"	"	"	X
11100-14-4	Aroclor-1268	BRL		µg/l	0.208	1	"	"	"	"	"	X

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	52			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	56			30-150 %		"	"	"	"	"	
	[2C]						"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	67			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	58			30-150 %		"	"	"	"	"	

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\* Reportable Detection Limit

BRL = Below Reporting Limit

Sample IdentificationRIZ-15A  
SBI1046-02Client Project #  
[none]Matrix  
Ground WaterCollection Date/Time  
21-Apr-10 16:45Received  
23-Apr-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds												
Volatile Organic Compounds												
Prepared by method SW846 5030 Water MS												
78-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	BRL		µg/l	5.0	5	SW846 8260B	29-Apr-10	29-Apr-10	JLG	1008989	X
67-64-1	Acetone	BRL		µg/l	50.0	5	"	"	"	"	"	X
107-13-1	Acrylonitrile	BRL		µg/l	2.5	5	"	"	"	"	"	X
71-43-2	Benzene	190		µg/l	5.0	5	"	"	"	"	"	X
108-88-1	Bromobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	
74-97-5	Bromochloromethane	BRL		µg/l	5.0	5	"	"	"	"	"	X
75-27-4	Bromodichloromethane	BRL		µg/l	2.5	5	"	"	"	"	"	X
75-25-2	Bromoform	BRL		µg/l	5.0	5	"	"	"	"	"	X
74-83-9	Bromomethane	BRL		µg/l	10.0	5	"	"	"	"	"	X
78-93-3	2-Butanone (MEK)	BRL		µg/l	50.0	5	"	"	"	"	"	X
104-51-8	n-Butylbenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
135-98-8	sec-Butylbenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
98-06-6	tert-Butylbenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
75-15-0	Carbon disulfide	BRL		µg/l	10.0	5	"	"	"	"	"	X
56-23-5	Carbon tetrachloride	BRL		µg/l	5.0	5	"	"	"	"	"	X
108-90-7	Chlorobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
75-00-3	Chloroethane	BRL		µg/l	10.0	5	"	"	"	"	"	X
67-66-3	Chloroform	BRL		µg/l	5.0	5	"	"	"	"	"	X
74-87-3	Chloromethane	BRL		µg/l	10.0	5	"	"	"	"	"	X
95-49-8	2-Chlorotoluene	BRL		µg/l	5.0	5	"	"	"	"	"	
108-43-4	4-Chlorotoluene	BRL		µg/l	5.0	5	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	BRL		µg/l	10.0	5	"	"	"	"	"	X
124-48-1	Dibromochloromethane	BRL		µg/l	2.5	5	"	"	"	"	"	X
106-93-4	1,2-Dibromoethane (EDB)	BRL		µg/l	2.5	5	"	"	"	"	"	X
74-95-3	Dibromomethane	BRL		µg/l	5.0	5	"	"	"	"	"	X
95-50-1	1,2-Dichlorobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
541-73-1	1,3-Dichlorobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
106-46-7	1,4-Dichlorobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
75-71-8	Dichlorodifluoromethane (Freon12)	BRL		µg/l	10.0	5	"	"	"	"	"	X
75-34-3	1,1-Dichloroethane	BRL		µg/l	5.0	5	"	"	"	"	"	X
107-06-2	1,2-Dichloroethane	BRL		µg/l	5.0	5	"	"	"	"	"	X
75-35-4	1,1-Dichloroethene	BRL		µg/l	5.0	5	"	"	"	"	"	X
156-59-2	cis-1,2-Dichloroethene	BRL		µg/l	5.0	5	"	"	"	"	"	X
156-60-5	trans-1,2-Dichloroethene	BRL		µg/l	5.0	5	"	"	"	"	"	X
78-67-5	1,2-Dichloropropane	BRL		µg/l	5.0	5	"	"	"	"	"	X
142-28-9	1,3-Dichloropropane	BRL		µg/l	5.0	5	"	"	"	"	"	X
594-20-7	2,2-Dichloropropane	BRL		µg/l	5.0	5	"	"	"	"	"	X
563-58-6	1,1-Dichloropropene	BRL		µg/l	5.0	5	"	"	"	"	"	X
10061-01-5	cis-1,3-Dichloropropene	BRL		µg/l	2.5	5	"	"	"	"	"	X
10061-02-6	trans-1,3-Dichloropropene	BRL		µg/l	2.5	5	"	"	"	"	"	X
100-41-4	Ethylbenzene	42.0		µg/l	5.0	5	"	"	"	"	"	X
87-68-3	Hexachlorobutadiene	BRL		µg/l	2.5	5	"	"	"	"	"	X
591-78-6	2-Hexanone (MBK)	BRL		µg/l	50.0	5	"	"	"	"	"	X
98-82-8	Isopropylbenzene	9.0		µg/l	5.0	5	"	"	"	"	"	X

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\* Reportable Detection Limit

BRL = Below Reporting Limit

Page 8 of 35

Sample Identification  
RIZ-15A  
SB11046-02

Client Project #  
[none]

Matrix  
Ground Water

Collection Date/Time  
21-Apr-10 16:45

Received  
23-Apr-10

SBI1046-02

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds												
Volatile Organic Compounds												
Prepared by method SW846 5030 Water MS												
99-87-6	4-Isopropyltoluene	6.2	✓	µg/l	5.0	5	SW846 8280B	29-Apr-10	29-Apr-10	JLG	1008989	X
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	5.0	5	"	"	"	"	"	X
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL		µg/l	50.0	5	"	"	"	"	"	X
75-09-2	Methylene chloride	BRL		µg/l	10.0	5	"	"	"	"	"	X
91-20-3	Naphthalene	450	✓	µg/l	5.0	5	"	"	"	"	"	X
103-65-1	n-Propylbenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
100-42-5	Styrene	26.9	✓	µg/l	5.0	5	"	"	"	"	"	X
630-20-6	1,1,1,2-Tetrachloroethane	BRL		µg/l	5.0	5	"	"	"	"	"	X
79-34-5	1,1,2,2-Tetrachloroethane	BRL		µg/l	2.5	5	"	"	"	"	"	X
127-18-4	Tetrachloroethene	BRL		µg/l	5.0	5	"	"	"	"	"	X
108-88-3	Toluene	31.0	✓	µg/l	5.0	5	"	"	"	"	"	X
87-61-6	1,2,3-Trichlorobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
120-82-1	1,2,4-Trichlorobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
108-70-3	1,3,5-Trichlorobenzene	BRL		µg/l	5.0	5	"	"	"	"	"	X
71-65-6	1,1,1-Trichloroethane	BRL		µg/l	5.0	5	"	"	"	"	"	X
79-00-5	1,1,2-Trichloroethane	BRL		µg/l	5.0	5	"	"	"	"	"	X
79-01-6	Trichloroethene	BRL		µg/l	5.0	5	"	"	"	"	"	X
75-69-4	Trichlorofluoromethane (Freon 11)	BRL		µg/l	5.0	5	"	"	"	"	"	X
98-18-4	1,2,3-Trichloropropane	BRL	✓	µg/l	5.0	5	"	"	"	"	"	X
95-63-6	1,2,4-Trimethylbenzene	47.6	✓	µg/l	5.0	5	"	"	"	"	"	X
108-87-8	1,3,5-Trimethylbenzene	17.7	✓	µg/l	5.0	5	"	"	"	"	"	X
75-01-4	Vinyl chloride	BRL	✓	µg/l	5.0	5	"	"	"	"	"	X
179001-23-1	m,p-Xylene	99.0	✓	µg/l	10.0	5	"	"	"	"	"	X
95-47-8	o-Xylene	46.1	✓	µg/l	5.0	5	"	"	"	"	"	X
109-99-9	Tetrahydrofuran	BRL		µg/l	10.0	5	"	"	"	"	"	X
60-29-7	Ethyl ether	BRL		µg/l	5.0	5	"	"	"	"	"	X
994-05-8	Tert-amyl methyl ether	BRL		µg/l	5.0	5	"	"	"	"	"	X
637-92-3	Ethyl tert-butyl ether	BRL		µg/l	5.0	5	"	"	"	"	"	X
108-20-3	Di-isopropyl ether	BRL		µg/l	5.0	5	"	"	"	"	"	X
75-65-0	Tert-Butanol / butyl alcohol	BRL		µg/l	50.0	5	"	"	"	"	"	X
123-91-1	1,4-Dioxane	BRL		µg/l	100	5	"	"	"	"	"	X
110-57-6	trans-1,4-Dichloro-2-butene	BRL		µg/l	25.0	5	"	"	"	"	"	X
64-17-5	Ethanol	BRL		µg/l	2000	5	"	"	"	"	"	X

Surrogate recoveries:

460-00-4	4-Bromofluorobenzene	101	70-130 %
2037-28-5	Toluene-d8	100	70-130 %
17060-07-0	1,2-Dichloroethane-d4	101	70-130 %
1868-53-7	Dibromofluoromethane	101	70-130 %

Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082  
Prepared by method SW846 3510C

12874-11-2	Aroclor-1018	BRL	µg/l	0.208	1	SW846 8082	27-Apr-10	28-Apr-10	IMR	1008734	X
11104-28-2	Aroclor-1221	BRL	µg/l	0.208	1	"	"	"	"	"	X
11141-16-5	Aroclor-1232	BRL	µg/l	0.208	1	"	"	"	"	"	X

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\* Reportable Detection Limit      BRL = Below Reporting Limit

Sample IdentificationRIZ-15A  
SB11046-02Client Project #  
[none]Matrix  
Ground WaterCollection Date/Time  
21-Apr-10 16:45Received  
23-Apr-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
<b>Semivolatile Organic Compounds by GC</b>												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3510C</u>												
53469-21-9	Aroclor-1242	BRL		µg/l	0.206	1	SW846 8082	27-Apr-10	28-Apr-10	IMR	1008734	X
12872-29-8	Aroclor-1248	BRL		µg/l	0.206	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	BRL		µg/l	0.206	1	"	"	"	"	"	X
11098-82-5	Aroclor-1260	BRL		µg/l	0.206	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	BRL		µg/l	0.206	1	"	"	"	"	"	X
11100-14-4	Aroclor-1268	BRL		µg/l	0.206	1	"	"	"	"	"	X

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	86			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	63			30-150 %		"	"	"	"	"	
	[2C]											
2051-24-3	Decachlorobiphenyl (Sr)	51			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	46			30-150 %		"	"	"	"	"	

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\* Reportable Detection Limit      BRL = Below Reporting Limit

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Sample Identification

Dup-I

SB11046-03

Client Project #

[none]

Matrix

Ground Water

Collection Date/Time

21-Apr-10 14:05

Received

23-Apr-10

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
<b>Volatile Organic Compounds</b>												
<u>Volatile Organic Compounds</u>												
<u>Prepared by method SW846 5030 Water MS</u>												
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	BRL		µg/l	1.0	1	SW846 8260B	30-Apr-10	30-Apr-10	JLG	1009099	X
67-64-1	Acetone	BRL		µg/l	10.0	1	"	"	"	"	"	X
107-13-1	Acrylonitrile	BRL		µg/l	0.5	1	"	"	"	"	"	X
71-43-2	Benzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-88-1	Bromobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
74-97-5	Bromochloromethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-27-4	Bromodichloromethane	BRL		µg/l	0.5	1	"	"	"	"	"	X
75-25-2	Bromoform	BRL		µg/l	1.0	1	"	"	"	"	"	X
74-83-9	Bromomethane	BRL		µg/l	2.0	1	"	"	"	"	"	X
78-93-3	2-Butanone (MEK)	BRL		µg/l	10.0	1	"	"	"	"	"	X
104-51-8	n-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
135-98-8	sec-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
98-06-6	tert-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-15-0	Carbon disulfide	BRL		µg/l	2.0	1	"	"	"	"	"	X
56-23-5	Carbon tetrachloride	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-90-7	Chlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-00-3	Chloroethane	BRL		µg/l	2.0	1	"	"	"	"	"	X
67-68-3	Chloroform	BRL		µg/l	1.0	1	"	"	"	"	"	X
74-87-3	Chloromethane	BRL		µg/l	2.0	1	"	"	"	"	"	X
95-49-8	2-Chlorotoluene	BRL		µg/l	1.0	1	"	"	"	"	"	
106-43-4	4-Chlorotoluene	BRL		µg/l	1.0	1	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	BRL		µg/l	2.0	1	"	"	"	"	"	X
124-48-1	Dibromochloromethane	BRL		µg/l	0.5	1	"	"	"	"	"	X
106-93-4	1,2-Dibromoethane (EDB)	BRL		µg/l	0.5	1	"	"	"	"	"	X
74-95-3	Dibromomethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
98-50-1	1,2-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
541-73-1	1,3-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
106-46-7	1,4-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-71-8	Dichlorodifluoromethane (Freon12)	BRL		µg/l	2.0	1	"	"	"	"	"	X
75-34-3	1,1-Dichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
107-06-2	1,2-Dichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-35-4	1,1-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
156-59-2	cis-1,2-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
156-60-5	trans-1,2-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
78-87-5	1,2-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"	X
142-28-9	1,3-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"	X
594-20-7	2,2-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"	X
563-58-6	1,1-Dichloropropene	BRL		µg/l	1.0	1	"	"	"	"	"	X
10061-01-5	cis-1,3-Dichloropropene	BRL		µg/l	0.5	1	"	"	"	"	"	X
10061-02-8	trans-1,3-Dichloropropene	BRL		µg/l	0.5	1	"	"	"	"	"	X
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
87-68-3	Hexachlorobutadiene	BRL		µg/l	0.5	1	"	"	"	"	"	X
591-78-6	2-Hexanone (MBK)	BRL		µg/l	10.0	1	"	"	"	"	"	X
98-82-8	Isopropylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X

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\* Reportable Detection Limit

BRL = Below Reporting Limit

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Sample Identification

Dup-1

SB11046-03

Client Project #

[none]

Matrix

Ground Water

Collection Date/Time

21-Apr-10 14:05

Received

23-Apr-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
<b>Volatile Organic Compounds</b>												
<u>Volatile Organic Compounds</u>												
<u>Prepared by method SW846 5030 Water MS</u>												
99-87-8	4-Isopropyltoluene	BRL		µg/l	1.0	1	SW846 8260B	30-Apr-10	30-Apr-10	JLG	1009099	X
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL		µg/l	10.0	1	"	"	"	"	"	X
75-09-2	Methylene chloride	BRL		µg/l	2.0	1	"	"	"	"	"	X
91-20-3	Naphthalene	BRL		µg/l	1.0	1	"	"	"	"	"	X
103-65-1	n-Propylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
100-42-5	Styrene	BRL		µg/l	1.0	1	"	"	"	"	"	X
630-20-6	1,1,1,2-Tetrachloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
79-34-5	1,1,2,2-Tetrachloroethane	BRL		µg/l	0.5	1	"	"	"	"	"	X
127-18-4	Tetrachloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-88-3	Toluene	BRL		µg/l	1.0	1	"	"	"	"	"	X
87-61-8	1,2,3-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
120-82-1	1,2,4-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-70-3	1,3,5-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
71-55-6	1,1,1-Trichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
79-00-5	1,1,2-Trichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
79-01-6	Trichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-69-4	Trichlorofluoromethane (Freon 11)	BRL		µg/l	1.0	1	"	"	"	"	"	X
96-18-4	1,2,3-Trichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"	X
95-63-6	1,2,4-Trimethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
109-67-8	1,3,5-Trimethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-01-4	Vinyl chloride	BRL		µg/l	1.0	1	"	"	"	"	"	X
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1	"	"	"	"	"	X
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"	"	"	"	X
109-99-9	Tetrahydrofuran	BRL		µg/l	2.0	1	"	"	"	"	"	X
60-29-7	Ethyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
994-05-8	Tert-amyl methyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
637-92-3	Ethyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-20-3	Di-isopropyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-65-0	Tert-Butanol / butyl alcohol	BRL		µg/l	10.0	1	"	"	"	"	"	X
123-91-1	1,4-Dioxane	BRL		µg/l	20.0	1	"	"	"	"	"	X
110-57-6	trans-1,4-Dichloro-2-butene	BRL		µg/l	5.0	1	"	"	"	"	"	X
64-17-5	Ethanol	BRL		µg/l	400	1	"	"	"	"	"	X
<u>Surrogate recoveries:</u>												
460-00-4	4-Bromofluorobenzene	89			70-130 %		"	"	"	"	"	
2037-26-6	Toluene-d8	100			70-130 %		"	"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	104			70-130 %		"	"	"	"	"	
1868-53-7	Dibromofluoromethane	109			70-130 %		"	"	"	"	"	
<b>Semivolatile Organic Compounds by GC</b>												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3510C</u>												
12874-11-2	Aroclor-1018	BRL		µg/l	0.211	1	SW846 8082	27-Apr-10	28-Apr-10	IMR	1008734	X
11104-28-2	Aroclor-1221	BRL		µg/l	0.211	1	"	"	"	"	"	X
11141-16-5	Aroclor-1232	BRL		µg/l	0.211	1	"	"	"	"	"	X

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\* Reportable Detection Limit BRL = Below Reporting Limit

Sample Identification

Dup-1

SB11046-03

Client Project #

[none]

Matrix

Ground Water

Collection Date/Time

21-Apr-10 14:05

Received

23-Apr-10

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3510C</u>												
53469-21-9	Aroclor-1242	BRL		µg/l	0.211	1	SW846 8082	27-Apr-10	28-Apr-10	IMR	1008734	X
12872-29-8	Aroclor-1248	BRL		µg/l	0.211	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	BRL		µg/l	0.211	1	"	"	"	"	"	X
11096-82-5	Aroclor-1260	BRL		µg/l	0.211	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	BRL		µg/l	0.211	1	"	"	"	"	"	X
11100-14-4	Aroclor-1268	BRL		µg/l	0.211	1	"	"	"	"	"	X
<u>Surrogate recoveries:</u>												
10386-84-2	1,4-DB-Octafluorobiphenyl (Sr)	83			30-150 %		"	"	"	"	"	
10386-84-2	1,4-DB-Octafluorobiphenyl (Sr)	70			30-150 %		"	"	"	"	"	
	[2C]											
2051-24-3	Decachlorobiphenyl (Sr)	73			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	64			30-150 %		"	"	"	"	"	

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\* Reportable Detection Limit      BRL = Below Reporting Limit

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Sample Identification

RIZ-17

SB11046-04

Client Project #

[none]

Matrix  
Ground Water

Collection Date/Time  
22-Apr-10 16:25

Received  
23-Apr-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
<b>Volatile Organic Compounds</b>												
<u>Volatile Organic Compounds</u>												
<u>Prepared by method SW846 5030 Water MS</u>												
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	BRL		µg/l	1.0	1	SW846 8260B	30-Apr-10	30-Apr-10	JLG	1009099	X
67-64-1	Acetone	BRL		µg/l	10.0	1	"	"	"	"	"	X
107-13-1	Acrylonitrile	BRL		µg/l	0.5	1	"	"	"	"	"	X
71-43-2	Benzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-88-1	Bromobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
74-97-5	Bromochloromethane	BRL		µg/l	0.5	1	"	"	"	"	"	X
75-27-4	Bromodichloromethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-25-2	Bromoform	BRL		µg/l	2.0	1	"	"	"	"	"	X
74-83-9	Bromomethane	BRL		µg/l	10.0	1	"	"	"	"	"	X
78-93-3	2-Butanone (MEK)	BRL		µg/l	1.0	1	"	"	"	"	"	X
104-51-8	n-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
135-98-8	sec-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
98-06-6	tert-Butylbenzene	BRL		µg/l	2.0	1	"	"	"	"	"	X
75-15-0	Carbon disulfide	BRL		µg/l	1.0	1	"	"	"	"	"	X
56-23-5	Carbon tetrachloride	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-90-7	Chlorobenzene	BRL		µg/l	2.0	1	"	"	"	"	"	X
75-00-3	Chloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
67-68-3	Chloroform	BRL		µg/l	2.0	1	"	"	"	"	"	X
74-87-3	Chloromethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
95-49-8	2-Chlorotoluene	BRL		µg/l	2.0	1	"	"	"	"	"	X
106-43-4	4-Chlorotoluene	BRL		µg/l	0.5	1	"	"	"	"	"	X
96-12-8	1,2-Dibromo-3-chloropropane	BRL		µg/l	0.5	1	"	"	"	"	"	X
124-48-1	Dibromochloromethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
106-93-4	1,2-Dibromoethane (EDB)	BRL		µg/l	1.0	1	"	"	"	"	"	X
74-95-3	Dibromomethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
95-50-1	1,2-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
541-73-1	1,3-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-46-7	1,4-Dichlorobenzene	BRL		µg/l	2.0	1	"	"	"	"	"	X
75-71-8	Dichlorodifluoromethane (Freon12)	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-34-3	1,1-Dichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
107-06-2	1,2-Dichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-35-4	1,1-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
156-59-2	cis-1,2-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
156-60-5	trans-1,2-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
78-87-5	1,2-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"	X
142-28-9	1,3-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"	X
594-20-7	2,2-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"	X
563-68-6	1,1-Dichloropropene	BRL		µg/l	0.5	1	"	"	"	"	"	X
10061-01-5	cis-1,3-Dichloropropene	BRL		µg/l	0.5	1	"	"	"	"	"	X
10061-02-6	trans-1,3-Dichloropropene	BRL		µg/l	1.0	1	"	"	"	"	"	X
100-41-4	Ethylbenzene	BRL		µg/l	0.5	1	"	"	"	"	"	X
87-68-3	Hexachlorobutadiene	BRL		µg/l	10.0	1	"	"	"	"	"	X
591-78-6	2-Hexanone (MBK)	BRL		µg/l	1.0	1	"	"	"	"	"	X
98-82-8	Isopropylbenzene	BRL		µg/l								

*This laboratory report is not valid without an authorized signature on the cover page.*

\* Reportable Detection Limit      BRL = Below Reporting Limit

Sample IdentificationRIZ-17  
SB11046-04Client Project #

[none]

Matrix

Ground Water

Collection Date/Time

22-Apr-10 16:25

Received

23-Apr-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
<b>Volatile Organic Compounds</b>												
<u>Volatile Organic Compounds</u>												
<u>Prepared by method SW846 5030 Water MS</u>												
99-87-6	4-Isopropyltoluene	BRL		µg/l	1.0	1	SW846 8260B	30-Apr-10	30-Apr-10	JLG	1009099	X
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL		µg/l	10.0	1	"	"	"	"	"	X
75-09-2	Methylene chloride	BRL		µg/l	2.0	1	"	"	"	"	"	X
91-20-3	Naphthalene	BRL		µg/l	1.0	1	"	"	"	"	"	X
103-65-1	n-Propylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
100-42-6	Styrene	BRL		µg/l	1.0	1	"	"	"	"	"	X
630-20-6	1,1,1,2-Tetrachloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
79-34-5	1,1,2,2-Tetrachloroethane	BRL		µg/l	0.5	1	"	"	"	"	"	X
127-18-4	Tetrachloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-89-3	Toluene	BRL		µg/l	1.0	1	"	"	"	"	"	X
87-61-6	1,2,3-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
120-82-1	1,2,4-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-70-3	1,3,5-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
71-55-6	1,1,1-Trichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
79-00-5	1,1,2-Trichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
79-01-6	Trichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-69-4	Trichlorofluoromethane (Freon 11)	BRL		µg/l	1.0	1	"	"	"	"	"	X
96-18-4	1,2,3-Trichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"	X
95-63-6	1,2,4-Trimethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-67-8	1,3,5-Trimethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-01-4	Vinyl chloride	BRL		µg/l	1.0	1	"	"	"	"	"	X
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1	"	"	"	"	"	X
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"	"	"	"	X
109-99-9	Tetrahydrofuran	BRL		µg/l	2.0	1	"	"	"	"	"	X
60-29-7	Ethyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
994-05-8	Tert-amyl methyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
637-92-3	Ethyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-20-3	Di-isopropyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-65-0	Tert-Butanol / butyl alcohol	BRL		µg/l	10.0	1	"	"	"	"	"	X
123-91-1	1,4-Dioxane	BRL		µg/l	20.0	1	"	"	"	"	"	X
110-67-6	trans-1,4-Dichloro-2-butene	BRL		µg/l	5.0	1	"	"	"	"	"	X
64-17-6	Ethanol	BRL		µg/l	400	1	"	"	"	"	"	X

Surrogate recoveries:

460-00-4	4-Bromofluorobenzene	90	70-130 %	"	"	"	"	"	"
2037-26-5	Toluene-d8	102	70-130 %	"	"	"	"	"	"
17060-07-0	1,2-Dichloroethane-d4	106	70-130 %	"	"	"	"	"	"
1868-53-7	Dibromofluoromethane	107	70-130 %	"	"	"	"	"	"

Semivolatile Organic Compounds by GCPolychlorinated Biphenyls by SW846 8082Prepared by method SW846 3510C

12874-11-2	Aroclor-1016	BRL		µg/l	0.206	1	SW846 8082	27-Apr-10	28-Apr-10	IMR	1008734	X
11104-28-2	Aroclor-1221	BRL		µg/l	0.206	1	"	"	"	"	"	X
11141-16-6	Aroclor-1232	BRL		µg/l	0.206	1	"	"	"	"	"	X

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\* Reportable Detection Limit      BRL = Below Reporting Limit

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Sample Identification

RIZ-17

SBI1046-04

Client Project #

[none]

Matrix

Ground Water

Collection Date/Time

22-Apr-10 16:25

Received

23-Apr-10

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
<b>Semivolatile Organic Compounds by GC</b>												
<b><u>Polychlorinated Biphenyls by SW846 8082</u></b>												
<b><u>Prepared by method SW846 3510C</u></b>												
53469-21-9	Aroclor-1242	BRL		µg/l	0.206	1	SW846 8082	27-Apr-10	28-Apr-10	IMR	1008734	X
12672-29-6	Aroclor-1246	BRL		µg/l	0.206	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	BRL		µg/l	0.206	1	"	"	"	"	"	X
11096-82-5	Aroclor-1260	BRL		µg/l	0.206	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	BRL		µg/l	0.206	1	"	"	"	"	"	X
11100-14-4	Aroclor-1268	BRL		µg/l	0.206	1	"	"	"	"	"	X
<b><u>Surrogate recoveries:</u></b>												
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	79			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	66			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	69			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	59			30-150 %		"	"	"	"	"	

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Sample Identification

Trip Blank  
SB11046-05

Client Project #  
[none]

Matrix  
Deionized Water

Collection Date/Time  
22-Apr-10 00:00

Received  
23-Apr-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
<b>Volatile Organic Compounds</b>												
<u>Volatile Organic Compounds</u>												
<u>Prepared by method SW846 5030 Water MS</u>												
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	BRL		µg/l	1.0	1	SW846 8260B	29-Apr-10	29-Apr-10	JLG	1008989	X
67-64-1	Acetone	BRL		µg/l	10.0	1	"	"	"	"	"	X
107-13-1	Acrylonitrile	BRL		µg/l	0.5	1	"	"	"	"	"	X
71-43-2	Benzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-88-1	Bromobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
74-97-5	Bromochloromethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-27-4	Bromodichloromethane	BRL		µg/l	0.5	1	"	"	"	"	"	X
75-25-2	Bromoform	BRL		µg/l	1.0	1	"	"	"	"	"	X
74-83-9	Bromomethane	BRL		µg/l	2.0	1	"	"	"	"	"	X
78-93-3	2-Butanone (MEK)	BRL		µg/l	10.0	1	"	"	"	"	"	X
104-61-8	n-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
135-98-8	sec-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
98-06-6	tert-Butylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-16-0	Carbon disulfide	BRL		µg/l	2.0	1	"	"	"	"	"	X
56-23-5	Carbon tetrachloride	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-90-7	Chlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-00-3	Chloroethane	BRL		µg/l	2.0	1	"	"	"	"	"	X
67-68-3	Chloroform	BRL		µg/l	1.0	1	"	"	"	"	"	X
74-87-3	Chloromethane	BRL		µg/l	2.0	1	"	"	"	"	"	X
95-49-8	2-Chlorotoluene	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-43-4	4-Chlorotoluene	BRL		µg/l	1.0	1	"	"	"	"	"	X
96-12-8	1,2-Dibromo-3-chloropropane	BRL		µg/l	2.0	1	"	"	"	"	"	X
124-48-1	Dibromochloromethane	BRL		µg/l	0.5	1	"	"	"	"	"	X
106-93-4	1,2-Dibromoethane (EDB)	BRL		µg/l	0.5	1	"	"	"	"	"	X
74-95-3	Dibromomethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
95-60-1	1,2-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
541-73-1	1,3-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
106-46-7	1,4-Dichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-71-8	Dichlorodifluoromethane (Freon12)	BRL		µg/l	2.0	1	"	"	"	"	"	X
75-34-3	1,1-Dichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
107-06-2	1,2-Dichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-35-4	1,1-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
156-59-2	cis-1,2-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
156-60-5	trans-1,2-Dichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
78-87-5	1,2-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"	X
142-28-9	1,3-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"	X
594-20-7	2,2-Dichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"	X
563-58-6	1,1-Dichloropropene	BRL		µg/l	1.0	1	"	"	"	"	"	X
10061-01-5	cis-1,3-Dichloropropene	BRL		µg/l	0.5	1	"	"	"	"	"	X
10061-02-6	trans-1,3-Dichloropropene	BRL		µg/l	0.5	1	"	"	"	"	"	X
100-41-4	Ethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
87-68-3	Hexachlorobutadiene	BRL		µg/l	0.5	1	"	"	"	"	"	X
591-78-6	2-Hexanone (MBK)	BRL		µg/l	10.0	1	"	"	"	"	"	X
98-82-8	Isopropylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X

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\* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Trip Blank  
SB11046-05

Client Project #  
[none]

Matrix  
Deionized Water

Collection Date/Time  
22-Apr-10 00:00

Received  
23-Apr-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert
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**Volatile Organic Compounds**Volatile Organic Compounds

Prepared by method SW846 5030 Water MS

99-87-6	4-Isopropyltoluene	BRL		µg/l	1.0	1	SW846 8260B	29-Apr-10	29-Apr-10	JLG	1008989	X
1634-04-4	Methyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-10-1	4-Methyl-2-pentanone (MIBK)	BRL		µg/l	10.0	1	"	"	"	"	"	X
75-09-2	Methylene chloride	BRL		µg/l	2.0	1	"	"	"	"	"	X
91-20-3	Naphthalene	BRL		µg/l	1.0	1	"	"	"	"	"	X
103-65-1	n-Propylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
100-42-6	Styrene	BRL		µg/l	1.0	1	"	"	"	"	"	X
630-20-8	1,1,1,2-Tetrachloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
79-34-5	1,1,2,2-Tetrachloroethane	BRL		µg/l	0.5	1	"	"	"	"	"	X
127-18-4	Tetrachloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-88-3	Toluene	BRL		µg/l	1.0	1	"	"	"	"	"	X
87-61-6	1,2,3-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
120-82-1	1,2,4-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-70-3	1,3,5-Trichlorobenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
71-55-6	1,1,1-Trichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
79-00-5	1,1,2-Trichloroethane	BRL		µg/l	1.0	1	"	"	"	"	"	X
79-01-6	Trichloroethene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-69-4	Trichlorofluoromethane (Freon 11)	BRL		µg/l	1.0	1	"	"	"	"	"	X
96-18-4	1,2,3-Trichloropropane	BRL		µg/l	1.0	1	"	"	"	"	"	X
95-63-8	1,2,4-Trimethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-67-8	1,3,5-Trimethylbenzene	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-01-4	Vinyl chloride	BRL		µg/l	1.0	1	"	"	"	"	"	X
179601-23-1	m,p-Xylene	BRL		µg/l	2.0	1	"	"	"	"	"	X
95-47-6	o-Xylene	BRL		µg/l	1.0	1	"	"	"	"	"	X
109-99-9	Tetrahydrofuran	BRL		µg/l	2.0	1	"	"	"	"	"	X
60-29-7	Ethyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
994-05-8	Tert-amyl methyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
637-92-3	Ethyl tert-butyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
108-20-3	Diisopropyl ether	BRL		µg/l	1.0	1	"	"	"	"	"	X
75-65-0	Tert-Butanol / butyl alcohol	BRL		µg/l	10.0	1	"	"	"	"	"	X
123-91-1	1,4-Dioxane	BRL		µg/l	20.0	1	"	"	"	"	"	X
110-57-6	trans-1,4-Dichloro-2-butene	BRL		µg/l	5.0	1	"	"	"	"	"	X
64-17-5	Ethanol	BRL		µg/l	400	1	"	"	"	"	"	X

Surrogate recoveries:

460-00-4	4-Bromofluorobenzene	99	70-130 %	"	"	"	"	"
2037-26-5	Toluene-d8	100	70-130 %	"	"	"	"	"
17060-07-0	1,2-Dichloroethane-d4	101	70-130 %	"	"	"	"	"
1868-53-7	Dibromofluoromethane	102	70-130 %	"	"	"	"	"

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\* Reportable Detection Limit

BRL = Below Reporting Limit

# **Volatile Organic Compounds - Quality Control**

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1008989 - SW846 5030 Water MS</b>										
<u>Blank (1008989-BLK1)</u>					<u>Prepared &amp; Analyzed: 29-Apr-10</u>					
1,1,2-Trichlorotrifluoroethane (Freon 113)	BRL		µg/l	1.0						
Acetone	BRL		µg/l	10.0						
Acrylonitrile	BRL		µg/l	0.5						
Benzene	BRL		µg/l	1.0						
Bromobenzene	BRL		µg/l	1.0						
Bromochloromethane	BRL		µg/l	1.0						
Bromodichloromethane	BRL		µg/l	0.5						
Bromoform	BRL		µg/l	1.0						
Bromomethane	BRL		µg/l	2.0						
2-Butanone (MEK)	BRL		µg/l	10.0						
n-Butylbenzene	BRL		µg/l	1.0						
sec-Butylbenzene	BRL		µg/l	1.0						
tert-Butylbenzene	BRL		µg/l	1.0						
Carbon disulfide	BRL		µg/l	2.0						
Carbon tetrachloride	BRL		µg/l	1.0						
Chlorobenzene	BRL		µg/l	1.0						
Chloroethane	BRL		µg/l	2.0						
Chloroform	BRL		µg/l	1.0						
Chloromethane	BRL		µg/l	2.0						
2-Chlorotoluene	BRL		µg/l	1.0						
4-Chlorotoluene	BRL		µg/l	1.0						
1,2-Dibromo-3-chloropropane	BRL		µg/l	2.0						
Dibromochloromethane	BRL		µg/l	0.5						
1,2-Dibromoethane (EOB)	BRL		µg/l	0.5						
Dibromomethane	BRL		µg/l	1.0						
1,2-Dichlorobenzene	BRL		µg/l	1.0						
1,3-Dichlorobenzene	BRL		µg/l	1.0						
1,4-Dichlorobenzene	BRL		µg/l	1.0						
Dichlorodifluoromethane (Freon12)	BRL		µg/l	2.0						
1,1-Dichloroethane	BRL		µg/l	1.0						
1,2-Dichloroethane	BRL		µg/l	1.0						
1,1-Dichloroethene	BRL		µg/l	1.0						
cis-1,2-Dichloroethene	BRL		µg/l	1.0						
trans-1,2-Dichloroethene	BRL		µg/l	1.0						
1,2-Dichloropropane	BRL		µg/l	1.0						
1,3-Dichloropropane	BRL		µg/l	1.0						
2,2-Dichloropropane	BRL		µg/l	1.0						
1,1-Dichloropropene	BRL		µg/l	1.0						
cis-1,3-Dichloropropene	BRL		µg/l	0.5						
trans-1,3-Dichloropropene	BRL		µg/l	0.5						
Ethylbenzene	BRL		µg/l	1.0						
Hexachlorobutadiene	BRL		µg/l	0.5						
2-Hexanone (MBK)	BRL		µg/l	10.0						
Isopropylbenzene	BRL		µg/l	1.0						
4-Isopropyltoluene	BRL		µg/l	1.0						
Methyl tert-butyl ether	BRL		µg/l	1.0						
4-Methyl-2-pentanone (MIBK)	BRL		µg/l	10.0						
Methylene chloride	BRL		µg/l	2.0						
Naphthalene	BRL		µg/l	1.0						
n-Propylbenzene	BRL		µg/l	1.0						
Styrene	BRL		µg/l	1.0						
1,1,1,2-Tetrachloroethane	BRL		µg/l	1.0						

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# **Volatile Organic Compounds - Quality Control**

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1008989 - SW846 5030 Water MS</b>										
<u>Blank (1008989-BLK1)</u>					<u>Prepared &amp; Analyzed: 29-Apr-10</u>					
1,1,2,2-Tetrachloroethane	BRL		µg/l	0.5						
Tetrachloroethene	BRL		µg/l	1.0						
Toluene	BRL		µg/l	1.0						
1,2,3-Trichlorobenzene	BRL		µg/l	1.0						
1,2,4-Trichlorobenzene	BRL		µg/l	1.0						
1,3,5-Trichlorobenzene	BRL		µg/l	1.0						
1,1,1-Trichloroethane	BRL		µg/l	1.0						
1,1,2-Trichloroethane	BRL		µg/l	1.0						
Trichloroethene	BRL		µg/l	1.0						
Trichlorofluoromethane (Freon 11)	BRL		µg/l	1.0						
1,2,3-Trichloropropane	BRL		µg/l	1.0						
1,2,4-Trimethylbenzene	BRL		µg/l	1.0						
1,3,5-Trimethylbenzene	BRL		µg/l	1.0						
Vinyl chloride	BRL		µg/l	1.0						
m,p-Xylene	BRL		µg/l	2.0						
o-Xylene	BRL		µg/l	1.0						
Tetrahydrofuran	BRL		µg/l	2.0						
Ethyl ether	BRL		µg/l	1.0						
Tert-amyl methyl ether	BRL		µg/l	1.0						
Ethyl tert-butyl ether	BRL		µg/l	1.0						
Di-isopropyl ether	BRL		µg/l	1.0						
Tert-Butanol / butyl alcohol	BRL		µg/l	10.0						
1,4-Dioxane	BRL		µg/l	20.0						
trans-1,4-Dichloro-2-butene	BRL		µg/l	5.0						
Ethanol	BRL		µg/l	400						
Surrogate: 4-Bromofluorobenzene	48.5		µg/l		50.0		97	70-130		
Surrogate: Toluene-d8	49.6		µg/l		50.0		99	70-130		
Surrogate: 1,2-Dichloroethane-d4	52.0		µg/l		50.0		104	70-130		
Surrogate: Dibromofluoromethane	51.0		µg/l		50.0		102	70-130		
<u>LCS (1008989-BS1)</u>					<u>Prepared &amp; Analyzed: 29-Apr-10</u>					
1,1,2-Trichlorotrifluoroethane (Freon 113)	18.6		µg/l		20.0		93	70-130		
Acetone	20.0		µg/l		20.0		100	53.2-137		
Acrylonitrile	19.1		µg/l		20.0		96	70-130		
Benzene	19.6		µg/l		20.0		98	70-130		
Bromobenzene	19.5		µg/l		20.0		97	70-130		
Bromochloromethane	20.5		µg/l		20.0		102	70-130		
Bromodichloromethane	20.3		µg/l		20.0		101	70-130		
Bromoform	22.0		µg/l		20.0		110	70-130		
Bromomethane	20.6		µg/l		20.0		103	48.9-147		
2-Butanone (MEK)	18.1		µg/l		20.0		90	70-139		
n-Butylbenzene	20.5		µg/l		20.0		102	70-130		
sec-Butylbenzene	21.9		µg/l		20.0		110	70-130		
tert-Butylbenzene	22.4		µg/l		20.0		112	70-130		
Carbon disulfide	18.2		µg/l		20.0		91	70-130		
Carbon tetrachloride	21.8		µg/l		20.0		109	70-130		
Chlorobenzene	18.8		µg/l		20.0		94	70-130		
Chloroethane	17.4		µg/l		20.0		87	65.8-130		
Chloroform	22.2		µg/l		20.0		111	70-130		
Chloromethane	17.0		µg/l		20.0		85	70-130		
2-Chlorotoluene	20.5		µg/l		20.0		102	70-130		
4-Chlorotoluene	20.5		µg/l		20.0		103	70-130		

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# Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1008989 - SW846 5030 Water MS										
<u>LCS (1008989-BS1)</u>					<u>Prepared &amp; Analyzed: 29-Apr-10</u>					
1,2-Dibromo-3-chloropropane	17.9		µg/l		20.0		89	70-130		
Dibromochloromethane	21.5		µg/l		20.0		108	52.9-130		
1,2-Dibromoethane (EDB)	19.9		µg/l		20.0		99	70-130		
Dibromomethane	18.4		µg/l		20.0		92	70-130		
1,2-Dichlorobenzene	19.4		µg/l		20.0		97	70-130		
1,3-Dichlorobenzene	20.3		µg/l		20.0		102	70-130		
1,4-Dichlorobenzene	18.2		µg/l		20.0		91	70-130		
Dichlorodifluoromethane (Freon12)	18.2		µg/l		20.0		91	63.1-130		
1,1-Dichloroethane	19.4		µg/l		20.0		97	70-130		
1,2-Dichloroethane	19.2		µg/l		20.0		96	70-130		
1,1-Dichloroethene	18.2		µg/l		20.0		91	70-130		
cis-1,2-Dichloroethene	20.2		µg/l		20.0		101	70-130		
trans-1,2-Dichloroethene	18.4		µg/l		20.0		92	70-130		
1,2-Dichloropropane	19.1		µg/l		20.0		95	70-130		
1,3-Dichloropropane	18.5		µg/l		20.0		93	70-130		
2,2-Dichloropropane	19.1		µg/l		20.0		98	70-130		
1,1-Dichloropropene	20.2		µg/l		20.0		101	70-130		
cis-1,3-Dichloropropene	20.7		µg/l		20.0		103	70-130		
trans-1,3-Dichloropropene	21.4		µg/l		20.0		107	70-130		
Ethylbenzene	20.5		µg/l		20.0		102	70-130		
Hexachlorobutadiene	20.8		µg/l		20.0		103	70-130		
2-Hexanone (MBK)	22.1		µg/l		20.0		111	70-130		
Isopropylbenzene	20.8		µg/l		20.0		103	70-130		
4-Isopropyltoluene	20.8		µg/l		20.0		103	70-130		
Methyl tert-butyl ether	20.0		µg/l		20.0		100	70-130		
4-Methyl-2-pentanone (MIBK)	21.0		µg/l		20.0		105	61-130		
Methylene chloride	18.1		µg/l		20.0		90	70-130		
Naphthalene	22.9		µg/l		20.0		114	70-130		
n-Propylbenzene	20.7		µg/l		20.0		104	70-130		
Styrene	21.9		µg/l		20.0		109	70-130		
1,1,1,2-Tetrachloroethane	20.8		µg/l		20.0		103	70-130		
1,1,2,2-Tetrachloroethane	20.8		µg/l		20.0		103	70-130		
Tetrachloroethene	20.0		µg/l		20.0		100	70-130		
Toluene	19.1		µg/l		20.0		96	70-130		
1,2,3-Trichlorobenzene	20.9		µg/l		20.0		105	70-130		
1,2,4-Trichlorobenzene	20.9		µg/l		20.0		105	70-130		
1,3,5-Trichlorobenzene	19.7		µg/l		20.0		98	70-130		
1,1,1-Trichloroethane	20.4		µg/l		20.0		102	70-130		
1,1,2-Trichloroethane	19.3		µg/l		20.0		96	70-130		
Trichloroethene	18.8		µg/l		20.0		94	70-130		
Trichlorofluoromethane (Freon 11)	18.9		µg/l		20.0		95	60-172		
1,2,3-Trichloropropane	18.5		µg/l		20.0		93	70-130		
1,2,4-Trimethylbenzene	22.4		µg/l		20.0		112	70-130		
1,3,5-Trimethylbenzene	22.3		µg/l		20.0		111	70-130		
Vinyl chloride	17.6		µg/l		20.0		88	70-130		
m,p-Xylene	42.4		µg/l		40.0		106	70-130		
o-Xylene	21.5		µg/l		20.0		108	70-130		
Tetrahydrofuran	20.7		µg/l		20.0		104	70-130		
Ethyl ether	18.8		µg/l		20.0		94	70-130		
Tert-amyl methyl ether	20.5		µg/l		20.0		102	70-130		
Ethyl tert-butyl ether	21.1		µg/l		20.0		105	70-130		
Di-isopropyl ether	20.8		µg/l		20.0		104	70-130		

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\* Reportable Detection Limit

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# Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1008989 - SW846 5030 Water MS										
<u>LCS (1008989-BS1)</u>					<u>Prepared &amp; Analyzed: 29-Apr-10</u>					
Tert-Butanol / butyl alcohol	168		µg/l		200		84	70-130		
1,4-Dioxane	220		µg/l		200		110	54.2-130		
trans-1,4-Dichloro-2-butene	17.2		µg/l		20.0		88	70-130		
Ethanol	375		µg/l		400		94	70-130		
Surrogate: 4-Bromofluorobenzene	51.1		µg/l		50.0		102	70-130		
Surrogate: Toluene-d8	49.5		µg/l		50.0		99	70-130		
Surrogate: 1,2-Dichloroethane-d4	49.6		µg/l		50.0		99	70-130		
Surrogate: Dibromofluoromethane	50.5		µg/l		50.0		101	70-130		
<u>LCS Dup (1008989-BSD1)</u>					<u>Prepared &amp; Analyzed: 29-Apr-10</u>					
1,1,2-Trichlorotrifluoroethane (Freon 113)	17.6		µg/l		20.0		88	70-130	8	25
Acetone	20.2		µg/l		20.0		101	53.2-137	1	50
Acrylonitrile	18.8		µg/l		20.0		94	70-130	2	25
Benzene	18.5		µg/l		20.0		92	70-130	8	25
Bromobenzene	20.6		µg/l		20.0		103	70-130	6	25
Bromochloromethane	20.7		µg/l		20.0		104	70-130	1	25
Bromodichloromethane	20.0		µg/l		20.0		100	70-130	2	25
Bromoform	23.4		µg/l		20.0		117	70-130	8	25
Bromomethane	20.1		µg/l		20.0		100	48.8-147	3	50
2-Butanone (MEK)	18.2		µg/l		20.0		91	70-139	0.9	50
n-Butylbenzene	18.0		µg/l		20.0		90	70-130	13	25
sec-Butylbenzene	21.5		µg/l		20.0		108	70-130	2	25
tert-Butylbenzene	22.7		µg/l		20.0		114	70-130	2	25
Carbon disulfide	16.7		µg/l		20.0		84	70-130	9	25
Carbon tetrachloride	20.2		µg/l		20.0		101	70-130	7	25
Chlorobenzene	18.7		µg/l		20.0		94	70-130	0.2	25
Chloroethane	16.4		µg/l		20.0		82	65.8-130	6	50
Chloroform	20.9		µg/l		20.0		104	70-130	8	25
Chloromethane	14.9		µg/l		20.0		75	70-130	13	25
2-Chlorotoluene	20.0		µg/l		20.0		100	70-130	2	25
4-Chlorotoluene	20.0		µg/l		20.0		100	70-130	3	25
1,2-Dibromo-3-chloropropane	18.6		µg/l		20.0		83	70-130	7	25
Dibromochloromethane	21.0		µg/l		20.0		105	52.9-130	2	50
1,2-Dibromoethane (EDB)	18.7		µg/l		20.0		99	70-130	0.7	25
Dibromomethane	18.3		µg/l		20.0		91	70-130	0.8	25
1,2-Dichlorobenzene	18.6		µg/l		20.0		93	70-130	4	25
1,3-Dichlorobenzene	20.7		µg/l		20.0		104	70-130	2	25
1,4-Dichlorobenzene	17.4		µg/l		20.0		87	70-130	5	25
Dichlorodifluoromethane (Freon 12)	16.8		µg/l		20.0		84	63.1-130	8	50
1,1-Dichloroethane	17.9		µg/l		20.0		90	70-130	8	25
1,2-Dichloroethane	17.8		µg/l		20.0		89	70-130	8	25
1,1-Dichloroethene	16.9		µg/l		20.0		85	70-130	7	25
cis-1,2-Dichloroethene	19.8		µg/l		20.0		99	70-130	2	25
trans-1,2-Dichloroethene	17.6		µg/l		20.0		88	70-130	5	25
1,2-Dichloropropane	17.5		µg/l		20.0		88	70-130	8	25
1,3-Dichloropropane	18.4		µg/l		20.0		92	70-130	0.3	25
2,2-Dichloropropane	17.6		µg/l		20.0		88	70-130	8	25
1,1-Dichloropropene	19.4		µg/l		20.0		97	70-130	4	25
cis-1,3-Dichloropropene	19.5		µg/l		20.0		97	70-130	8	25
trans-1,3-Dichloropropene	20.9		µg/l		20.0		105	70-130	2	25
Ethylbenzene	20.0		µg/l		20.0		100	70-130	2	25
Hexachlorobutadiene	19.4		µg/l		20.0		97	70-130	8	50

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# **Volatile Organic Compounds - Quality Control**

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1008989 - SW846 5030 Water MS</b>										
<u>LCS Dup (1008989-BSD1)</u>					<u>Prepared &amp; Analyzed: 29-Apr-10</u>					
2-Hexanone (MBK)	20.3		µg/l		20.0		102	70-130	8	25
Isopropylbenzene	20.3		µg/l		20.0		102	70-130	2	25
4-Isopropyltoluene	18.8		µg/l		20.0		94	70-130	9	25
Methyl tert-butyl ether	19.9		µg/l		20.0		100	70-130	0.8	25
4-Methyl-2-pentanone (MIBK)	19.5		µg/l		20.0		98	61-130	7	50
Methylene chloride	17.1		µg/l		20.0		86	70-130	5	25
Naphthalene	21.6		µg/l		20.0		108	70-130	6	25
n-Propylbenzene	20.0		µg/l		20.0		100	70-130	3	25
Styrene	22.3		µg/l		20.0		111	70-130	2	25
1,1,1,2-Tetrachloroethane	21.2		µg/l		20.0		106	70-130	3	25
1,1,2,2-Tetrachloroethane	20.8		µg/l		20.0		104	70-130	0.9	25
Tetrachloroethene	19.7		µg/l		20.0		98	70-130	2	25
Toluene	18.1		µg/l		20.0		91	70-130	5	25
1,2,3-Trichlorobenzene	20.5		µg/l		20.0		103	70-130	2	25
1,2,4-Trichlorobenzene	20.3		µg/l		20.0		101	70-130	3	25
1,3,5-Trichlorobenzene	19.6		µg/l		20.0		98	70-130	0.5	25
1,1,1-Trichloroethane	19.6		µg/l		20.0		98	70-130	4	25
1,1,2-Trichloroethane	18.6		µg/l		20.0		93	70-130	4	25
Trichloroethene	17.5		µg/l		20.0		88	70-130	7	25
Trichlorofluoromethane (Freon 11)	17.6		µg/l		20.0		88	60-172	7	50
1,2,3-Trichloropropane	18.0		µg/l		20.0		90	70-130	3	25
1,2,4-Trimethylbenzene	22.2		µg/l		20.0		111	70-130	0.5	25
1,3,5-Trimethylbenzene	22.2		µg/l		20.0		111	70-130	0.2	25
Vinyl chloride	15.2		µg/l		20.0		76	70-130	15	25
m,p-Xylene	41.5		µg/l		40.0		104	70-130	2	25
o-Xylene	21.5		µg/l		20.0		108	70-130	0.09	25
Tetrahydrofuran	19.6		µg/l		20.0		98	70-130	6	25
Ethyl ether	18.4		µg/l		20.0		92	70-130	3	50
Tert-amyl methyl ether	19.3		µg/l		20.0		97	70-130	6	25
Ethyl tert-butyl ether	20.3		µg/l		20.0		101	70-130	4	25
Di-isopropyl ether	19.3		µg/l		20.0		96	70-130	8	25
Tert-Butanol / butyl alcohol	188		µg/l		200		83	70-130	2	25
1,4-Dioxane	218		µg/l		200		108	54.2-130	2	25
trans-1,4-Dichloro-2-butene	17.7		µg/l		20.0		88	70-130	2	25
Ethanol	365		µg/l		400		91	70-130	3	30
Surrogate: 4-Bromofluorobenzene	52.0		µg/l		50.0		104	70-130		
Surrogate: Toluene-d8	50.2		µg/l		50.0		100	70-130		
Surrogate: 1,2-Dichloroethane-d4	48.4		µg/l		50.0		97	70-130		
Surrogate: Dibromofluoromethane	51.4		µg/l		50.0		103	70-130		
<u>Matrix Spike (1008989-MS1)</u>				<u>Source: SB11046-02</u>		<u>Prepared &amp; Analyzed: 29-Apr-10</u>				
1,1,2-Trichlorotrifluoroethane (Freon 113)	23.7		µg/l		20.0	BRL	118	70-130		
Acetone	17.2		µg/l		20.0	BRL	86	70-130		
Acrylonitrile	18.0		µg/l		20.0	BRL	90	70-130		
Benzene	54.9		µg/l		20.0	38.0	85	70-130		
Bromobenzene	25.3		µg/l		20.0	BRL	127	70-130		
Bromochloromethane	21.0		µg/l		20.0	BRL	105	70-130		
Bromodichloromethane	19.7		µg/l		20.0	BRL	99	70-130		
Bromoform	25.5		µg/l		20.0	BRL	127	70-130		
Bromomethane	11.7	QM7	µg/l		20.0	BRL	59	70-130		
2-Butanone (MEK)	18.9		µg/l		20.0	BRL	84	70-130		
n-Butylbenzene	30.4	QM7	µg/l		20.0	BRL	152	70-130		

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\* Reportable Detection Limit      BRL = Below Reporting Limit

# Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1008989 - SW846 5030 Water MS										
<u>Matrix Spike (1008989-MS1)</u>			<u>Source: SB11046-02</u>		<u>Prepared &amp; Analyzed: 29-Apr-10</u>					
sec-Butylbenzene	31.8	QM7	µg/l		20.0	BRL	159	70-130		
tert-Butylbenzene	31.9	QM7	µg/l		20.0	BRL	159	70-130		
Carbon disulfide	17.5		µg/l		20.0	0.8	83	70-130		
Carbon tetrachloride	24.1		µg/l		20.0	BRL	121	70-130		
Chlorobenzene	22.1		µg/l		20.0	BRL	111	70-130		
Chloroethane	14.7		µg/l		20.0	BRL	74	70-130		
Chloroform	21.0		µg/l		20.0	BRL	105	70-130		
Chloromethane	12.8	QM7	µg/l		20.0	BRL	84	70-130		
2-Chlorotoluene	28.2	QM7	µg/l		20.0	BRL	131	70-130		
4-Chlorotoluene	26.9	QM7	µg/l		20.0	BRL	135	70-130		
1,2-Dibromo-3-chloropropane	20.8		µg/l		20.0	BRL	104	70-130		
Dibromochloromethane	21.9		µg/l		20.0	BRL	109	70-130		
1,2-Dibromoethane (EDB)	20.2		µg/l		20.0	BRL	101	70-130		
Dibromomethane	18.2		µg/l		20.0	BRL	91	70-130		
1,2-Dichlorobenzene	24.7		µg/l		20.0	BRL	123	70-130		
1,3-Dichlorobenzene	27.1	QM7	µg/l		20.0	BRL	135	70-130		
1,4-Dichlorobenzene	23.1		µg/l		20.0	BRL	115	70-130		
Dichlorodifluoromethane (Freon12)	18.0		µg/l		20.0	BRL	90	70-130		
1,1-Dichloroethane	19.0		µg/l		20.0	BRL	95	70-130		
1,2-Dichloroethane	17.8		µg/l		20.0	BRL	89	70-130		
1,1-Dichloroethene	19.8		µg/l		20.0	BRL	99	70-130		
cis-1,2-Dichloroethene	21.0		µg/l		20.0	BRL	105	70-130		
trans-1,2-Dichloroethene	19.5		µg/l		20.0	BRL	97	70-130		
1,2-Dichloropropane	18.5		µg/l		20.0	BRL	92	70-130		
1,3-Dichloropropane	18.4		µg/l		20.0	BRL	92	70-130		
2,2-Dichloropropane	23.5		µg/l		20.0	BRL	117	70-130		
1,1-Dichloropropene	24.9		µg/l		20.0	BRL	124	70-130		
cis-1,3-Dichloropropene	21.3		µg/l		20.0	BRL	107	70-130		
trans-1,3-Dichloropropene	21.7		µg/l		20.0	BRL	109	70-130		
Ethylbenzene	33.8		µg/l		20.0	8.4	127	70-130		
Hexachlorobutadiene	36.6	QM7	µg/l		20.0	BRL	183	70-130		
2-Hexanone (MBK)	21.7		µg/l		20.0	BRL	108	70-130		
Isopropylbenzene	28.8	QM7	µg/l		20.0	1.8	135	70-130		
4-Isopropyltoluene	29.6	QM7	µg/l		20.0	1.2	142	70-130		
Methyl tert-butyl ether	23.1		µg/l		20.0	BRL	116	70-130		
4-Methyl-2-pentanone (MIBK)	20.3		µg/l		20.0	BRL	102	70-130		
Methylene chloride	17.1		µg/l		20.0	BRL	85	70-130		
Naphthalene	116		µg/l		20.0	90.0	130	70-130		
n-Propylbenzene	29.4	QM7	µg/l		20.0	0.7	144	70-130		
Styrene	33.5	QM7	µg/l		20.0	5.4	141	70-130		
1,1,1,2-Tetrachloroethane	23.9		µg/l		20.0	BRL	120	70-130		
1,1,2,2-Tetrachloroethane	27.0	QM7	µg/l		20.0	BRL	135	70-130		
Tetrachloroethene	28.0	QM7	µg/l		20.0	BRL	140	70-130		
Toluene	26.6		µg/l		20.0	6.2	102	70-130		
1,2,3-Trichlorobenzene	31.3	QM7	µg/l		20.0	BRL	157	70-130		
1,2,4-Trichlorobenzene	33.5	QM7	µg/l		20.0	BRL	168	70-130		
1,3,5-Trichlorobenzene	31.4	QM7	µg/l		20.0	BRL	157	70-130		
1,1,1-Trichloroethane	22.6		µg/l		20.0	BRL	113	70-130		
1,1,2-Trichloroethane	19.4		µg/l		20.0	BRL	97	70-130		
Trichloroethene	19.4		µg/l		20.0	BRL	97	70-130		
Trichlorofluoromethane (Freon 11)	20.8		µg/l		20.0	BRL	104	70-130		
1,2,3-Trichloropropane	19.2		µg/l		20.0	BRL	96	70-130		

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# **Volatile Organic Compounds - Quality Control**

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1008989 - SW846 5030 Water MS</b>										
<u>Matrix Spike (1008989-MS1)</u>										
						<u>Source: SB11046-02</u>		<u>Prepared &amp; Analyzed: 29-Apr-10</u>		
1,2,4-Trimethylbenzene	38.4	QM7	µg/l		20.0	9.5	144	70-130		
1,3,5-Trimethylbenzene	34.0	QM7	µg/l		20.0	3.5	152	70-130		
Vinyl chloride	14.8		µg/l		20.0	BRL	73	70-130		
m,p-Xylene	71.7		µg/l		40.0	19.8	130	70-130		
o-Xylene	34.6		µg/l		20.0	9.2	127	70-130		
Tetrahydrofuran	19.3		µg/l		20.0	BRL	98	70-130		
Ethyl ether	18.3		µg/l		20.0	BRL	91	70-130		
Tert-amyl methyl ether	18.4		µg/l		20.0	BRL	92	70-130		
Ethyl tert-butyl ether	21.3		µg/l		20.0	BRL	108	70-130		
Di-isopropyl ether	19.7		µg/l		20.0	BRL	98	70-130		
Tert-Butanol / butyl alcohol	159		µg/l		200	BRL	80	70-130		
1,4-Dioxane	195		µg/l		200	BRL	98	70-130		
trans-1,4-Dichloro-2-butene	17.5		µg/l		20.0	BRL	87	70-130		
Ethanol	298		µg/l		400	BRL	75	70-130		
Surrogate: 4-Bromofluorobenzene	51.3		µg/l		50.0		103	70-130		
Surrogate: Toluene-d8	50.6		µg/l		50.0		101	70-130		
Surrogate: 1,2-Dichloroethane-d4	47.5		µg/l		50.0		95	70-130		
Surrogate: Dibromofluoromethane	50.7		µg/l		50.0		101	70-130		
<u>Matrix Spike Dup (1008989-MSD1)</u>										
						<u>Source: SB11046-02</u>		<u>Prepared &amp; Analyzed: 29-Apr-10</u>		
1,1,2-Trichlorotrifluoroethane (Freon 113)	23.7		µg/l		20.0	BRL	119	70-130	0.08	30
Acetone	17.5		µg/l		20.0	BRL	88	70-130	2	30
Acrylonitrile	18.5		µg/l		20.0	BRL	92	70-130	3	30
Benzene	54.3		µg/l		20.0	38.0	82	70-130	4	30
Bromobenzene	25.0		µg/l		20.0	BRL	125	70-130	1	30
Bromochloromethane	21.0		µg/l		20.0	BRL	105	70-130	0	30
Bromodichloromethane	20.3		µg/l		20.0	BRL	102	70-130	3	30
Bromoform	24.7		µg/l		20.0	BRL	123	70-130	3	30
Bromomethane	11.0	QM7	µg/l		20.0	BRL	55	70-130	7	30
2-Butanone (MEK)	18.8		µg/l		20.0	BRL	94	70-130	11	30
n-Butylbenzene	32.0	QM7	µg/l		20.0	BRL	180	70-130	5	30
sec-Butylbenzene	31.8	QM7	µg/l		20.0	BRL	158	70-130	0.7	30
tert-Butylbenzene	31.7	QM7	µg/l		20.0	BRL	158	70-130	0.8	30
Carbon disulfide	17.8		µg/l		20.0	0.8	85	70-130	2	30
Carbon tetrachloride	24.6		µg/l		20.0	BRL	123	70-130	2	30
Chlorobenzene	22.1		µg/l		20.0	BRL	110	70-130	0.1	30
Chloroethane	22.0	QR2	µg/l		20.0	BRL	110	70-130	39	30
Chloroform	20.8		µg/l		20.0	BRL	104	70-130	1	30
Chloromethane	14.5		µg/l		20.0	BRL	72	70-130	12	30
2-Chlorotoluene	25.8		µg/l		20.0	BRL	129	70-130	1	30
4-Chlorotoluene	27.0	QM7	µg/l		20.0	BRL	135	70-130	0.3	30
1,2-Dibromo-3-chloropropane	21.8		µg/l		20.0	BRL	108	70-130	4	30
Dibromochloromethane	22.4		µg/l		20.0	BRL	112	70-130	2	30
1,2-Dibromoethane (EDB)	20.5		µg/l		20.0	BRL	103	70-130	1	30
Dibromomethane	17.8		µg/l		20.0	BRL	89	70-130	2	30
1,2-Dichlorobenzene	25.0		µg/l		20.0	BRL	125	70-130	1	30
1,3-Dichlorobenzene	27.0	QM7	µg/l		20.0	BRL	135	70-130	0.1	30
1,4-Dichlorobenzene	23.1		µg/l		20.0	BRL	116	70-130	0.09	30
Dichlorodifluoromethane (Freon12)	17.5		µg/l		20.0	BRL	88	70-130	2	30
1,1-Dichloroethane	18.8		µg/l		20.0	BRL	94	70-130	1	30
1,2-Dichloroethane	17.7		µg/l		20.0	BRL	89	70-130	0.3	30
1,1-Dichloroethene	19.5		µg/l		20.0	BRL	97	70-130	2	30

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\* Reportable Detection Limit      BRL = Below Reporting Limit

# **Volatile Organic Compounds - Quality Control**

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1008989 - SW846 5030 Water MS</b>										
<u>Matrix Spike Dup (1008989-MSD1)</u>			<u>Source: SB11046-02</u>			<u>Prepared &amp; Analyzed: 29-Apr-10</u>				
cis-1,2-Dichloroethene	21.0		µg/l		20.0	BRL	105	70-130	0.05	30
trans-1,2-Dichloroethene	18.9		µg/l		20.0	BRL	95	70-130	3	30
1,2-Dichloropropane	19.4		µg/l		20.0	BRL	97	70-130	5	30
1,3-Dichloropropane	18.7		µg/l		20.0	BRL	94	70-130	1	30
2,2-Dichloropropane	23.8		µg/l		20.0	BRL	119	70-130	2	30
1,1-Dichloropropane	24.7		µg/l		20.0	BRL	124	70-130	0.7	30
cis-1,3-Dichloropropane	22.0		µg/l		20.0	BRL	110	70-130	3	30
trans-1,3-Dichloropropane	22.0		µg/l		20.0	BRL	110	70-130	1	30
Ethylbenzene	34.1		µg/l		20.0	8.4	129	70-130	1	30
Hexachlorobutadiene	38.2	QM7	µg/l		20.0	BRL	191	70-130	4	30
2-Hexanone (MBK)	22.2		µg/l		20.0	BRL	111	70-130	3	30
Isopropylbenzene	28.7	QM7	µg/l		20.0	1.8	134	70-130	0.4	30
4-Isopropyltoluene	30.7	QM7	µg/l		20.0	1.2	147	70-130	4	30
Methyl tert-butyl ether	21.2		µg/l		20.0	BRL	108	70-130	9	30
4-Methyl-2-pentanone (MIBK)	21.3		µg/l		20.0	BRL	107	70-130	5	30
Methylene chloride	18.0		µg/l		20.0	BRL	80	70-130	7	30
Naphthalene	127	QM7, QR5	µg/l		20.0	90.0	184	70-130	34	30
n-Propylbenzene	29.2	QM7	µg/l		20.0	0.7	143	70-130	0.7	30
Styrene	32.5	QM7	µg/l		20.0	5.4	136	70-130	4	30
1,1,1,2-Tetrachloroethane	24.2		µg/l		20.0	BRL	121	70-130	1	30
1,1,1,2,2-Tetrachloroethane	26.6	QM7	µg/l		20.0	BRL	133	70-130	1	30
Tetrachloroethene	27.6	QM7	µg/l		20.0	BRL	138	70-130	1	30
Toluene	28.6		µg/l		20.0	6.2	102	70-130	0.1	30
1,2,3-Trichlorobenzene	33.6	QM7	µg/l		20.0	BRL	168	70-130	7	30
1,2,4-Trichlorobenzene	34.7	QM7	µg/l		20.0	BRL	173	70-130	3	30
1,3,5-Trichlorobenzene	32.6	QM7	µg/l		20.0	BRL	163	70-130	4	30
1,1,1-Trichloroethane	22.0		µg/l		20.0	BRL	114	70-130	1	30
1,1,2-Trichloroethane	19.2		µg/l		20.0	BRL	98	70-130	0.7	30
Trichloroethene	19.0		µg/l		20.0	BRL	95	70-130	2	30
Trichlorofluoromethane (Freon 11)	20.5		µg/l		20.0	BRL	102	70-130	1	30
1,2,3-Trichloropropane	19.1		µg/l		20.0	BRL	96	70-130	0.2	30
1,2,4-Trimethylbenzene	38.6	QM7	µg/l		20.0	9.5	146	70-130	0.8	30
1,3,5-Trimethylbenzene	33.4	QM7	µg/l		20.0	3.5	149	70-130	2	30
Vinyl chloride	14.4		µg/l		20.0	BRL	72	70-130	2	30
m,p-Xylene	71.9		µg/l		40.0	19.8	130	70-130	0.3	30
o-Xylene	35.4	QM7	µg/l		20.0	9.2	131	70-130	3	30
Tetrahydrofuran	20.0		µg/l		20.0	BRL	100	70-130	4	30
Ethyl ether	18.3		µg/l		20.0	BRL	92	70-130	0.3	30
Tert-amyl methyl ether	18.5		µg/l		20.0	BRL	93	70-130	0.8	30
Ethyl tert-butyl ether	21.8		µg/l		20.0	BRL	109	70-130	3	30
Di-isopropyl ether	20.5		µg/l		20.0	BRL	102	70-130	4	30
Tert-Butanol / butyl alcohol	157		µg/l		200	BRL	78	70-130	2	30
1,4-Dioxane	184		µg/l		200	BRL	92	70-130	6	30
trans-1,4-Dichloro-2-butene	18.4		µg/l		20.0	BRL	82	70-130	6	30
Ethanol	321		µg/l		400	BRL	80	70-130	7	30
Surrogate: 4-Bromofluorobenzene	50.7		µg/l		50.0		101	70-130		
Surrogate: Toluene-d8	49.7		µg/l		50.0		99	70-130		
Surrogate: 1,2-Dichloroethane-d4	47.8		µg/l		50.0		98	70-130		
Surrogate: Dibromofluoromethane	50.7		µg/l		50.0		101	70-130		

**Batch 1009099 - SW846 5030 Water MS**

Blank (1009099-BLK1)

Prepared & Analyzed: 30-Apr-10

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\* Reportable Detection Limit      BRL = Below Reporting Limit

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# **Volatile Organic Compounds - Quality Control**

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1009099 - SW846 5030 Water MS</b>										
<u>Blank (1009099-BLK1)</u>										<u>Prepared &amp; Analyzed: 30-Apr-10</u>
1,1,2-Trichlorotrifluoroethane (Freon 113)	BRL		µg/l	1.0						
Acetone	BRL		µg/l	10.0						
Acrylonitrile	BRL		µg/l	0.5						
Benzene	BRL		µg/l	1.0						
Bromobenzene	BRL		µg/l	1.0						
Bromochloromethane	BRL		µg/l	1.0						
Bromodichloromethane	BRL		µg/l	0.5						
Bromoform	BRL		µg/l	1.0						
Bromomethane	BRL		µg/l	2.0						
2-Butanone (MEK)	BRL		µg/l	10.0						
n-Butylbenzene	BRL		µg/l	1.0						
sec-Butylbenzene	BRL		µg/l	1.0						
tert-Butylbenzene	BRL		µg/l	1.0						
Carbon disulfide	BRL		µg/l	2.0						
Carbon tetrachloride	BRL		µg/l	1.0						
Chlorobenzene	BRL		µg/l	1.0						
Chloroethane	BRL		µg/l	2.0						
Chloroform	BRL		µg/l	1.0						
Chloromethane	BRL		µg/l	2.0						
2-Chlorotoluene	BRL		µg/l	1.0						
4-Chlorotoluene	BRL		µg/l	1.0						
1,2-Dibromo-3-chloropropane	BRL		µg/l	2.0						
Dibromochloromethane	BRL		µg/l	0.5						
1,2-Dibromoethane (EDB)	BRL		µg/l	0.5						
Dibromomethane	BRL		µg/l	1.0						
1,2-Dichlorobenzene	BRL		µg/l	1.0						
1,3-Dichlorobenzene	BRL		µg/l	1.0						
1,4-Dichlorobenzene	BRL		µg/l	1.0						
Dichlorodifluoromethane (Freon12)	BRL		µg/l	2.0						
1,1-Dichloroethane	BRL		µg/l	1.0						
1,2-Dichloroethane	BRL		µg/l	1.0						
1,1-Dichloroethene	BRL		µg/l	1.0						
cis-1,2-Dichloroethene	BRL		µg/l	1.0						
trans-1,2-Dichloroethene	BRL		µg/l	1.0						
1,2-Dichloropropane	BRL		µg/l	1.0						
1,3-Dichloropropane	BRL		µg/l	1.0						
2,2-Dichloropropane	BRL		µg/l	1.0						
1,1-Dichloropropene	BRL		µg/l	1.0						
cis-1,3-Dichloropropene	BRL		µg/l	0.5						
trans-1,3-Dichloropropene	BRL		µg/l	0.5						
Ethylbenzene	BRL		µg/l	1.0						
Hexachlorobutadiene	BRL		µg/l	0.5						
2-Hexanone (MBK)	BRL		µg/l	10.0						
Isopropylbenzene	BRL		µg/l	1.0						
4-Isopropyltoluene	BRL		µg/l	1.0						
Methyl tert-butyl ether	BRL		µg/l	1.0						
4-Methyl-2-pentanone (MIBK)	BRL		µg/l	10.0						
Methylene chloride	BRL		µg/l	2.0						
Naphthalene	BRL		µg/l	1.0						
n-Propylbenzene	BRL		µg/l	1.0						
Styrene	BRL		µg/l	1.0						
1,1,1,2-Tetrachloroethane	BRL		µg/l	1.0						

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\* Reportable Detection Limit      BRL = Below Reporting Limit

# **Volatile Organic Compounds - Quality Control**

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1009099 - SW846 5030 Water MS</b>										
<u>Blank (1009099-BLK1)</u>					<u>Prepared &amp; Analyzed: 30-Apr-10</u>					
1,1,2,2-Tetrachloroethane	BRL		µg/l	0.5						
Tetrachloroethene	BRL		µg/l	1.0						
Toluene	BRL		µg/l	1.0						
1,2,3-Trichlorobenzene	BRL		µg/l	1.0						
1,2,4-Trichlorobenzene	BRL		µg/l	1.0						
1,3,5-Trichlorobenzene	BRL		µg/l	1.0						
1,1,1-Trichloroethane	BRL		µg/l	1.0						
1,1,2-Trichloroethane	BRL		µg/l	1.0						
Trichloroethene	BRL		µg/l	1.0						
Trichlorofluoromethane (Freon 11)	BRL		µg/l	1.0						
1,2,3-Trichloropropane	BRL		µg/l	1.0						
1,2,4-Trimethylbenzene	BRL		µg/l	1.0						
1,3,5-Trimethylbenzene	BRL		µg/l	1.0						
Vinyl chloride	BRL		µg/l	1.0						
m,p-Xylene	BRL		µg/l	2.0						
o-Xylene	BRL		µg/l	1.0						
Tetrahydrofuran	BRL		µg/l	2.0						
Ethyl ether	BRL		µg/l	1.0						
Tert-amyl methyl ether	BRL		µg/l	1.0						
Ethyl tert-butyl ether	BRL		µg/l	1.0						
Di-isopropyl ether	BRL		µg/l	1.0						
Tert-Butanol / butyl alcohol	BRL		µg/l	10.0						
1,4-Dioxane	BRL		µg/l	20.0						
trans-1,4-Dichloro-2-butene	BRL		µg/l	5.0						
Ethanol	BRL		µg/l	400						
Surrogate: 4-Bromofluorobenzene	42.7		µg/l		50.0		85	70-130		
Surrogate: Toluene-d8	51.2		µg/l		50.0		102	70-130		
Surrogate: 1,2-Dichloroethane-d4	51.5		µg/l		50.0		103	70-130		
Surrogate: Dibromofluoromethane	53.0		µg/l		50.0		108	70-130		
<u>LCS (1009099-BL1)</u>					<u>Prepared &amp; Analyzed: 30-Apr-10</u>					
1,1,2-Trichlorotrifluoroethane (Freon 113)	22.7		µg/l		20.0		113	70-130		
Acetone	21.9		µg/l		20.0		110	53.2-137		
Acrylonitrile	20.6		µg/l		20.0		103	70-130		
Benzene	20.8		µg/l		20.0		104	70-130		
Bromobenzene	20.8		µg/l		20.0		104	70-130		
Bromochloromethane	19.1		µg/l		20.0		98	70-130		
Bromodichloromethane	22.1		µg/l		20.0		110	70-130		
Bromoform	22.2		µg/l		20.0		111	70-130		
Bromomethane	19.8		µg/l		20.0		99	48.9-147		
2-Butanone (MEK)	18.9		µg/l		20.0		95	70-139		
n-Butylbenzene	21.8		µg/l		20.0		109	70-130		
sec-Butylbenzene	22.1		µg/l		20.0		110	70-130		
tert-Butylbenzene	22.3		µg/l		20.0		112	70-130		
Carbon disulfide	21.4		µg/l		20.0		107	70-130		
Carbon tetrachloride	24.0		µg/l		20.0		120	70-130		
Chlorobenzene	19.8		µg/l		20.0		99	70-130		
Chloroethane	20.0		µg/l		20.0		100	65.8-130		
Chloroform	20.9		µg/l		20.0		105	70-130		
Chloromethane	20.2		µg/l		20.0		101	70-130		
2-Chlorotoluene	20.7		µg/l		20.0		104	70-130		
4-Chlorotoluene	21.3		µg/l		20.0		108	70-130		

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# Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1009099 - SW846 5030 Water MS										
<u>LCS (1009099-B31)</u>					<u>Prepared &amp; Analyzed: 30-Apr-10</u>					
1,2-Dibromo-3-chloropropane	19.6		µg/l		20.0		98	70-130		
Dibromochloromethane	23.2		µg/l		20.0		116	52.9-130		
1,2-Dibromoethane (EOB)	21.4		µg/l		20.0		107	70-130		
Dibromomethane	20.3		µg/l		20.0		102	70-130		
1,2-Dichlorobenzene	20.1		µg/l		20.0		101	70-130		
1,3-Dichlorobenzene	21.3		µg/l		20.0		107	70-130		
1,4-Dichlorobenzene	19.8		µg/l		20.0		99	70-130		
Dichlorodifluoromethane (Freon12)	24.5		µg/l		20.0		123	63.1-130		
1,1-Dichloroethane	20.5		µg/l		20.0		102	70-130		
1,2-Dichloroethane	19.4		µg/l		20.0		97	70-130		
1,1-Dichloroethene	21.3		µg/l		20.0		107	70-130		
cis-1,2-Dichloroethene	17.6		µg/l		20.0		88	70-130		
trans-1,2-Dichloroethene	20.3		µg/l		20.0		102	70-130		
1,2-Dichloropropane	21.0		µg/l		20.0		105	70-130		
1,3-Dichloropropane	19.5		µg/l		20.0		98	70-130		
2,2-Dichloropropane	20.4		µg/l		20.0		102	70-130		
1,1-Dichloropropene	22.3		µg/l		20.0		111	70-130		
cis-1,3-Dichloropropene	21.6		µg/l		20.0		108	70-130		
trans-1,3-Dichloropropene	20.4		µg/l		20.0		102	70-130		
Ethylbenzene	20.8		µg/l		20.0		104	70-130		
Hexachlorobutadiene	20.0		µg/l		20.0		100	70-130		
2-Hexanone (MBK)	19.0		µg/l		20.0		95	70-130		
Isopropylbenzene	20.7		µg/l		20.0		104	70-130		
4-Isopropyltoluene	21.2		µg/l		20.0		106	70-130		
Methyl tert-butyl ether	20.1		µg/l		20.0		100	70-130		
4-Methyl-2-pentanone (MIBK)	17.8		µg/l		20.0		89	61-130		
Methylene chloride	19.5		µg/l		20.0		97	70-130		
Naphthalene	22.0		µg/l		20.0		110	70-130		
n-Propylbenzene	22.0		µg/l		20.0		110	70-130		
Styrene	21.0		µg/l		20.0		105	70-130		
1,1,1,2-Tetrachloroethane	23.3		µg/l		20.0		116	70-130		
1,1,2,2-Tetrachloroethane	19.7		µg/l		20.0		99	70-130		
Tetrachloroethene	20.2		µg/l		20.0		101	70-130		
Toluene	20.5		µg/l		20.0		103	70-130		
1,2,3-Trichlorobenzene	19.6		µg/l		20.0		98	70-130		
1,2,4-Trichlorobenzene	18.6		µg/l		20.0		93	70-130		
1,3,5-Trichlorobenzene	20.7		µg/l		20.0		104	70-130		
1,1,1-Trichloroethane	21.1		µg/l		20.0		106	70-130		
1,1,2-Trichloroethane	20.0		µg/l		20.0		100	70-130		
Trichloroethene	21.8		µg/l		20.0		109	70-130		
Trichlorofluoromethane (Freon 11)	22.4		µg/l		20.0		112	60-172		
1,2,3-Trichloropropane	19.8		µg/l		20.0		99	70-130		
1,2,4-Trimethylbenzene	21.3		µg/l		20.0		107	70-130		
1,3,5-Trimethylbenzene	21.3		µg/l		20.0		106	70-130		
Vinyl chloride	19.8		µg/l		20.0		99	70-130		
m,p-Xylene	42.0		µg/l		40.0		105	70-130		
o-Xylene	21.3		µg/l		20.0		106	70-130		
Tetrahydrofuran	18.8		µg/l		20.0		94	70-130		
Ethyl ether	20.3		µg/l		20.0		101	70-130		
Tert-amyl methyl ether	18.4		µg/l		20.0		92	70-130		
Ethyl tert-butyl ether	20.7		µg/l		20.0		103	70-130		
Di-isopropyl ether	20.6		µg/l		20.0		103	70-130		

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# **Volatile Organic Compounds - Quality Control**

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1009099 - SW846 5030 Water MS</b>										
<u><b>LCS (1009099-B51)</b></u>										
						<u>Prepared &amp; Analyzed: 30-Apr-10</u>				
Tert-Butanol / butyl alcohol	187		µg/l		200		94	70-130		
1,4-Dioxane	221		µg/l		200		111	54.2-130		
trans-1,4-Dichloro-2-butene	22.2		µg/l		20.0		111	70-130		
Ethanol	389		µg/l		400		97	70-130		
Surrogate: 4-Bromofluorobenzene	50.7		µg/l		50.0		101	70-130		
Surrogate: Toluene-d8	49.1		µg/l		50.0		98	70-130		
Surrogate: 1,2-Dichloroethane-d4	49.0		µg/l		50.0		98	70-130		
Surrogate: Dibromofluoromethane	50.4		µg/l		50.0		101	70-130		
						<u>Prepared &amp; Analyzed: 30-Apr-10</u>				
1,1,2-Trichlorotrifluoroethane (Freon 113)	22.7		µg/l		20.0		114	70-130	0.2	25
Acetone	21.4		µg/l		20.0		107	53.2-137	2	50
Acrylonitrile	22.6		µg/l		20.0		113	70-130	9	25
Benzene	20.3		µg/l		20.0		102	70-130	2	25
Bromobenzene	19.8		µg/l		20.0		99	70-130	5	25
Bromochloromethane	21.0		µg/l		20.0		105	70-130	9	25
Bromodichloromethane	21.6		µg/l		20.0		108	70-130	2	25
Bromoform	22.6		µg/l		20.0		113	70-130	2	25
Bromomethane	20.1		µg/l		20.0		100	48.9-147	2	50
2-Butanone (MEK)	20.5		µg/l		20.0		103	70-139	8	50
n-Butylbenzene	21.1		µg/l		20.0		105	70-130	3	25
sec-Butylbenzene	21.0		µg/l		20.0		105	70-130	5	25
tert-Butylbenzene	21.0		µg/l		20.0		105	70-130	6	25
Carbon disulfide	21.0		µg/l		20.0		105	70-130	2	25
Carbon tetrachloride	23.5		µg/l		20.0		117	70-130	2	25
Chlorobenzene	19.5		µg/l		20.0		97	70-130	2	25
Chloroethane	20.6		µg/l		20.0		103	65.6-130	3	50
Chloroform	21.2		µg/l		20.0		106	70-130	1	25
Chloromethane	20.4		µg/l		20.0		102	70-130	0.9	25
2-Chlorotoluene	20.0		µg/l		20.0		100	70-130	4	25
4-Chlorotoluene	19.5		µg/l		20.0		98	70-130	9	25
1,2-Dibromo-3-chloropropane	19.5		µg/l		20.0		98	70-130	0.3	25
Dibromochloromethane	22.8		µg/l		20.0		114	52.9-130	2	50
1,2-Dibromoethane (EDB)	21.3		µg/l		20.0		107	70-130	0.2	25
Dibromomethane	21.5		µg/l		20.0		108	70-130	6	25
1,2-Dichlorobenzene	20.1		µg/l		20.0		101	70-130	0.1	25
1,3-Dichlorobenzene	20.6		µg/l		20.0		103	70-130	3	25
1,4-Dichlorobenzene	19.5		µg/l		20.0		98	70-130	1	25
Dichlorodifluoromethane (Freon12)	23.6		µg/l		20.0		118	63.1-130	4	50
1,1-Dichloroethane	21.0		µg/l		20.0		105	70-130	2	25
1,2-Dichloroethane	20.0		µg/l		20.0		100	70-130	3	25
1,1-Dichloroethene	20.4		µg/l		20.0		102	70-130	4	25
cis-1,2-Dichloroethane	21.9		µg/l		20.0		110	70-130	22	25
trans-1,2-Dichloroethene	20.4		µg/l		20.0		102	70-130	0.5	25
1,2-Dichloropropane	20.1		µg/l		20.0		100	70-130	4	25
1,3-Dichloropropane	20.5		µg/l		20.0		103	70-130	5	25
2,2-Dichloropropane	20.7		µg/l		20.0		104	70-130	2	25
1,1-Dichloropropene	21.4		µg/l		20.0		107	70-130	4	25
cis-1,3-Dichloropropene	21.2		µg/l		20.0		106	70-130	2	25
trans-1,3-Dichloropropene	20.9		µg/l		20.0		104	70-130	2	25
Ethylbenzene	19.9		µg/l		20.0		100	70-130	4	25
Hexachlorobutadiene	19.6		µg/l		20.0		98	70-130	2	50

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# **Volatile Organic Compounds - Quality Control**

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1009099 - SW846 5030 Water MS</b>										
<u>LCS Dup (1009099-BSD1)</u>					<u>Prepared &amp; Analyzed: 30-Apr-10</u>					
2-Hexanone (MBK)	20.3		µg/l		20.0		101	70-130	6	25
Isopropylbenzene	20.1		µg/l		20.0		100	70-130	3	25
4-Isopropyltoluene	20.7		µg/l		20.0		104	70-130	2	25
Methyl tert-butyl ether	21.0		µg/l		20.0		105	70-130	4	25
4-Methyl-2-pentanone (MIBK)	20.3		µg/l		20.0		102	61-130	13	50
Methylene chloride	20.4		µg/l		20.0		102	70-130	5	25
Naphthalene	22.6		µg/l		20.0		113	70-130	3	25
n-Propylbenzene	21.3		µg/l		20.0		106	70-130	3	25
Styrene	20.4		µg/l		20.0		102	70-130	2	25
1,1,1,2-Tetrachloroethane	23.8		µg/l		20.0		119	70-130	2	25
1,1,2,2-Tetrachloroethane	19.8		µg/l		20.0		99	70-130	0.3	25
Tetrachloroethane	19.3		µg/l		20.0		98	70-130	5	25
Toluene	20.9		µg/l		20.0		105	70-130	2	25
1,2,3-Trichlorobenzene	20.1		µg/l		20.0		100	70-130	3	25
1,2,4-Trichlorobenzene	19.4		µg/l		20.0		97	70-130	4	25
1,3,5-Trichlorobenzene	20.8		µg/l		20.0		104	70-130	0.05	25
1,1,1-Trichloroethane	21.1		µg/l		20.0		106	70-130	0.09	25
1,1,2-Trichloroethane	20.4		µg/l		20.0		102	70-130	2	25
Trichloroethene	20.9		µg/l		20.0		104	70-130	4	25
Trichlorofluoromethane (Freon 11)	22.4		µg/l		20.0		112	60-172	0.4	50
1,2,3-Trichloropropane	19.6		µg/l		20.0		98	70-130	0.8	25
1,2,4-Trimethylbenzene	20.4		µg/l		20.0		102	70-130	5	25
1,3,5-Trimethylbenzene	21.0		µg/l		20.0		105	70-130	2	25
Vinyl chloride	18.4		µg/l		20.0		92	70-130	7	25
m,p-Xylene	41.7		µg/l		40.0		104	70-130	0.7	25
o-Xylene	21.2		µg/l		20.0		106	70-130	0.3	25
Tetrahydrofuran	20.5		µg/l		20.0		102	70-130	9	25
Ethyl ether	20.7		µg/l		20.0		104	70-130	2	50
Tert-amyl methyl ether	19.1		µg/l		20.0		96	70-130	4	25
Ethyl tert-butyl ether	20.7		µg/l		20.0		104	70-130	0.3	25
Di-isopropyl ether	21.6		µg/l		20.0		108	70-130	5	25
Tert-Butanol / butyl alcohol	204		µg/l		200		102	70-130	8	25
1,4-Dioxane	209		µg/l		200		104	54.2-130	6	25
trans-1,4-Dichloro-2-butene	21.6		µg/l		20.0		108	70-130	3	25
Ethanol	418		µg/l		400		104	70-130	7	30
Surrogate: 4-Bromofluorobenzene	50.0		µg/l		50.0		100	70-130		
Surrogate: Toluene-d8	50.2		µg/l		50.0		100	70-130		
Surrogate: 1,2-Dichloroethane-d4	51.3		µg/l		50.0		103	70-130		
Surrogate: Dibromofluoromethane	51.2		µg/l		50.0		102	70-130		

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## Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit
<b>Batch 1008734 - SW846 3510C</b>										
<u>Blank (1008734-BLK1)</u>					<u>Prepared &amp; Analyzed: 27-Apr-10</u>					
Aroclor-1016	BRL		µg/l	0.200						
Aroclor-1016 [2C]	BRL		µg/l	0.200						
Aroclor-1221	BRL		µg/l	0.200						
Aroclor-1221 [2C]	BRL		µg/l	0.200						
Aroclor-1232	BRL		µg/l	0.200						
Aroclor-1232 [2C]	BRL		µg/l	0.200						
Aroclor-1242	BRL		µg/l	0.200						
Aroclor-1242 [2C]	BRL		µg/l	0.200						
Aroclor-1248	BRL		µg/l	0.200						
Aroclor-1248 [2C]	BRL		µg/l	0.200						
Aroclor-1254	BRL		µg/l	0.200						
Aroclor-1254 [2C]	BRL		µg/l	0.200						
Aroclor-1260	BRL		µg/l	0.200						
Aroclor-1260 [2C]	BRL		µg/l	0.200						
Aroclor-1282	BRL		µg/l	0.200						
Aroclor-1282 [2C]	BRL		µg/l	0.200						
Aroclor-1288	BRL		µg/l	0.200						
Aroclor-1288 [2C]	BRL		µg/l	0.200						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.136		µg/l		0.200		68	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.137		µg/l		0.200		68	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.138		µg/l		0.200		69	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.118		µg/l		0.200		59	30-150		
<u>LCS (1008734-BS1)</u>					<u>Prepared &amp; Analyzed: 27-Apr-10</u>					
Aroclor-1016	1.85		µg/l	0.200	2.50		74	50-140		
Aroclor-1016 [2C]	1.78		µg/l	0.200	2.50		71	50-140		
Aroclor-1260	1.77		µg/l	0.200	2.50		71	50-140		
Aroclor-1260 [2C]	1.85		µg/l	0.200	2.50		68	50-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.161		µg/l		0.200		78	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.144		µg/l		0.200		72	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.123		µg/l		0.200		62	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.129		µg/l		0.200		64	30-150		
<u>LCS Dup (1008734-BSD1)</u>					<u>Prepared: 27-Apr-10 Analyzed: 28-Apr-10</u>					
Aroclor-1016	2.01		µg/l	0.200	2.50		80	50-140	8	30
Aroclor-1016 [2C]	1.82		µg/l	0.200	2.50		73	50-140	3	30
Aroclor-1260	1.72		µg/l	0.200	2.50		69	50-140	3	30
Aroclor-1260 [2C]	1.58		µg/l	0.200	2.50		83	50-140	5	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.149		µg/l		0.200		74	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.144		µg/l		0.200		72	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.123		µg/l		0.200		62	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.132		µg/l		0.200		68	30-150		
<u>Matrix Spike (1008734-MS1)</u>					<u>Source: SB11046-02 Prepared: 27-Apr-10 Analyzed: 28-Apr-10</u>					
Aroclor-1016	2.18		µg/l	0.208	2.58	BRL	84	40-135		
Aroclor-1260	1.73		µg/l	0.208	2.58	BRL	67	40-135		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.118		µg/l		0.208		56	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.182		µg/l		0.208		88	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.111		µg/l		0.208		64	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.129		µg/l		0.208		62	30-150		

This laboratory report is not valid without an authorized signature on the cover page.

\* Reportable Detection Limit BRL = Below Reporting Limit

# Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1008734 - SW846 3510C										
<u>Matrix Spike Dup (1008734-MSD1)</u>			<u>Source: SB11046-02</u>			<u>Prepared: 27-Apr-10 Analyzed: 28-Apr-10</u>				
Aroclor-1016	2.24		µg/l	0.211	2.63	BRL	85	40-135	1	15
Aroclor-1260	1.77		µg/l	0.211	2.63	BRL	67	40-135	0.2	20
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.193		µg/l		0.211		92	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.151		µg/l		0.211		72	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.106		µg/l		0.211		51	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.132		µg/l		0.211		62	30-150		

*This laboratory report is not valid without an authorized signature on the cover page.*

\* Reportable Detection Limit      BRL = Below Reporting Limit

## Notes and Definitions

GS	This sample was not able to be analyzed for client requested reporting limits due to high concentrations of target analytes in the sample.
QM7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QR2	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QR5	RPD out of acceptance range.
R04	The Reporting Limits for this analysis are elevated due to sample foaming.
BRL	Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic

Validated by:  
Hanibal C. Tayeh, Ph.D.

**Reasonable Confidence Protocols  
Laboratory Analysis  
QA/QC Certification Form**

**Laboratory Name:** Spectrum Analytical, Inc.

**Client:** Stantec Consulting Services - Hartford, CT

**Project Location:** 78-98 Rebesch Dr. - North Haven, CT

**Project Number:** [none]

**Sampling Date(s):**  
4/21/2010 through 4/22/2010

**Laboratory Sample ID(s):**  
SB11046-01 through SB11046-05

**RCP Methods Used:**

SW846 8082

SW846 8260B

1	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the CT DEP method-specific Reasonable Confidence Protocol documents?	✓ Yes	No
1A	Were the method specified preservation and holding time requirements met?	✓ Yes	No
1B	<u>YPH and EPH methods only:</u> Was the VPH or EPH method conducted without significant modifications (see Section 11.3 of respective RCP methods)? *	Yes	No
	* These methods have not yet been approved for release by CT DEP	✓ N/A	
2	Were all samples received by the laboratory in a condition consistent with that described on the associated chain-of-custody document(s)?	✓ Yes	No
3	Were samples received at an appropriate temperature?	✓ Yes	No
4	Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved?	Yes	✓ No
5	a) Were reporting limits specified or referenced on the chain-of-custody? *	Yes	✓ No
	b) Were these reporting limits met? <span style="float: right;">* Exceptions are defined by qualifiers</span>	Yes	No
6	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?	✓ Yes	No
7	Are project-specific matrix spikes and laboratory duplicates included in this data set?	✓ Yes	No

**Note:** For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A, or #1B is "No", the data package does not meet the requirements for "Reasonable Confidence."

*I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for obtaining the information contained in this analytical report, such information is accurate and complete.*



Hanibal C. Tayeh, Ph.D.  
President/Laboratory Director  
Date: 5/3/2010



Report Date:  
11-May-10 15:42



SPECTRUM ANALYTICAL, INC.

Featuring

HANIBAL TECHNOLOGY

**Laboratory Report**

- ☒ Final Report  
☐ Re-Issued Report  
☐ Revised Report

Stantec Consulting Services  
20 Church Street, Suite 1710  
Hartford, CT 06103  
Attn: John Insall

Project: 78-98 Rebesch Dr. - North Haven, CT  
Project #: [none]

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB11047-01	Warehouse	Air	23-Apr-10 11:28	23-Apr-10 16:45
SB11047-02	Dup	Air	23-Apr-10 11:53	23-Apr-10 16:45
SB11047-03	Ambient	Air	23-Apr-10 12:06	23-Apr-10 16:45
SB11047-04	Office	Air	23-Apr-10 12:22	23-Apr-10 16:45
SB11047-05	Amarr	Air	23-Apr-10 12:52	23-Apr-10 16:45

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.  
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110  
Connecticut # PH-0777  
Florida # E87600/E87936  
Maine # MA138  
New Hampshire # 2538  
New Jersey # MA011/MA012  
New York # 11393/11840  
Pennsylvania # 68-04426/68-02924  
Rhode Island # 98  
USDA # S-51435  
Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D.  
President/Laboratory Director

Technical Reviewer's Initial:

Please note that this report contains 1 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

*Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at [www.spectrum-analytical.com](http://www.spectrum-analytical.com) for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).*

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

**CASE NARRATIVE:**

Please note that this report includes 7 pages of analytical data from Northeast Analytical, Inc. (NEA ID AN04537-42).



**DISPOSAL REQUIREMENTS: (To be filled in by Client)**  
 RETURN TO CLIENT \_\_\_\_\_  
 DISPOSAL BY NORTHEAST ANALYTICAL \_\_\_\_\_  
 ARCHIVAL BY NORTHEAST ANALYTICAL \_\_\_\_\_  
 Additional charges incurred for disposal (if hazardous or critical). Call for details.

PAGE 1

**BY RECORD  
TICAL, INC.**  
neclady, NY 12308  
Fax (518) 381-6055  
information@nealab.com

**CHAIN OF CUI**  
**NORTHEAST AN**  
22190 Technology Drive,  
Telephone (518) 346-455  
www.northeast.com

200

CLIENT REPORT TO BE SENT TO:										ENTER ANALYSIS AND METHOD NUMBER REQUESTED									
PROJECT/PROJECT NAME:										PRESERVATIVE CODE: 'S'									
PROJECT MANAGER:										BOTTLE TYPE: PUE									
PROJECT LOCATION (CITY/STATE/ZIP):										BOTTLE SIZE:									
PROJECT NUMBER:										PRESERVATIVE AS:									
PROJECT ADDRESS:										0 - NONE									
PROJECT PHONE:										1 - HCL									
PROJECT FAX:										2 - HNO3									
PROJECT E-MAIL:										3 - H2SO4									
PROJECT WEBSITE:										4 - NaOH									
PROJECT COMMENTS:										5 - Zn / Ascorb									
PROJECT NOTES:										6 - NaOH									
PROJECT CONTACT:										7 - NaHSO4									
PROJECT DATE:										8 - Other: TPC									
PROJECT/PROJECT NAME:										PRESERVATIVE CODE: 'S'									
PROJECT MANAGER:										BOTTLE TYPE: PUE									
PROJECT LOCATION (CITY/STATE/ZIP):										BOTTLE SIZE:									
PROJECT NUMBER:										PRESERVATIVE AS:									
PROJECT ADDRESS:										0 - NONE									
PROJECT PHONE:										1 - HCL									
PROJECT FAX:										2 - HNO3									
PROJECT E-MAIL:										3 - H2SO4									
PROJECT WEBSITE:										4 - NaOH									
PROJECT COMMENTS:										5 - Zn / Ascorb									
PROJECT NOTES:										6 - NaOH									
PROJECT CONTACT:										7 - NaHSO4									
PROJECT DATE:										8 - Other: TPC									

LINE	ITEM	QUANTITY	UNIT PRICE	TOTAL PRICE
01	CPU AND DATA PACKAGE ADDITIONAL COST	5.0		
	LOGICAL COC FORM U-01, INTODUC RESUMI 01			
	SUBTOTAL			50.00
	TOTAL			50.00

100



CERTIFICATE OF ANALYSIS  
5/11/2010  
SPECTRUM ANALYTICAL  
830 SILVER ST  
AGAWAM, MA 01001  
CONTACT: NICOLE LEJA



CUSTOMER ID: WAREHOUSE  
MATRIX: POLYURETHANE FOAM  
DATE RECEIVED: 4/27/2010 TIME: 10:24  
SAMPLED BY: A. KOVAL  
CUSTOMER PO: N/A

NEA ID: AN04537 NEA LRF: 10040179-01  
DATE SAMPLED: 04/23/2010 TIME: 11:28  
PROJECT: 78-98 RELAESCHI DRIVE  
LOCATION: NORTH HAVEN, CT  
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	PQL	UNITS	DATE ANALYZED	FLAGS
EPA Method TO-4A					
Aroclor 1016	ND	0.000309	ug/m <sup>3</sup>	05/05/2010	U
Aroclor 1221	0.00120	0.000309	ug/m <sup>3</sup>	05/05/2010	PB
Aroclor 1232	ND	0.000309	ug/m <sup>3</sup>	05/05/2010	U
Aroclor 1242	0.00115	0.000309	ug/m <sup>3</sup>	05/05/2010	AD
Aroclor 1248	ND	0.000309	ug/m <sup>3</sup>	05/05/2010	U
Aroclor 1254	ND	0.000309	ug/m <sup>3</sup>	05/05/2010	U
Aroclor 1260	ND	0.000309	ug/m <sup>3</sup>	05/05/2010	U
Total PCB Amount > Reporting Limit	0.002350				

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the PQL.

PQL (Practical Quantitation Limit). Denotes lowest analyte concentration reportable for the sample.

AD-Aroclor 1242 is being reported as the best Aroclor match. The sample exhibits an altered PCB pattern.

PB-Aroclor 1221 is being used to report an altered PCB pattern exhibited by the sample. Actual Aroclor 1221 is not present in the sample, but is reported to more accurately quantify PCB present in sample that has undergone environmental alteration.

Note: There were several non-target peaks.

AUTHORIZED SIGNATURE:

William A. Kotas  
Sr. Laboratory Representative  
Robert E. Wagner  
Laboratory Director



CERTIFICATE OF ANALYSIS  
5/11/2010  
SPECTRUM ANALYTICAL  
830 SILVER ST  
AGAWAM, MA 01001  
CONTACT: NICOLE LEJA



CUSTOMER ID: DUP  
MATRIX: POLYURETHANE FOAM  
DATE RECEIVED: 4/27/2010 TIME: 10:24  
SAMPLED BY: A. KOVAL  
CUSTOMER PO: N/A

NEA ID: AN04538 NEA LRF: 10040179-02  
DATE SAMPLED: 04/23/2010 TIME: 11:53  
PROJECT: 78-98 RELAESCHI DRIVE  
LOCATION: NORTH HAVEN, CT  
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	PQL	UNITS	DATE ANALYZED	FLAGS
EPA Method TO-4A					
Aroclor 1016	ND	0.000330	ug/m <sup>3</sup>	05/05/2010	U
Aroclor 1221	0.00130	0.000330	ug/m <sup>3</sup>	05/05/2010	PB
Aroclor 1232	ND	0.000330	ug/m <sup>3</sup>	05/05/2010	U
Aroclor 1242	0.000974	0.000330	ug/m <sup>3</sup>	05/05/2010	AD
Aroclor 1248	ND	0.000330	ug/m <sup>3</sup>	05/05/2010	U
Aroclor 1254	0.000203	0.000330	ug/m <sup>3</sup>	05/05/2010	PF,J
Aroclor 1260	ND	0.000330	ug/m <sup>3</sup>	05/05/2010	U
Total PCB Amount > Reporting Limit	0.002480				

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the PQL.

PQL (Practical Quantitation Limit). Denotes lowest analyte concentration reportable for the sample.

J - Denotes an estimated concentration. The concentration result is greater than or equal to the Method Detection Limit (MDL) but less than the PQL.

AD-Aroclor 1242 is being reported as the best Aroclor match. The sample exhibits an altered PCB pattern.

PB-Aroclor 1221 is being used to report an altered PCB pattern exhibited by the sample. Actual Aroclor 1221 is not present in the sample, but is reported to more accurately quantify PCB present in sample that has undergone environmental alteration.

PF-Aroclor 1254 is being used to report an altered PCB pattern exhibited by the sample. Actual Aroclor 1254 is not present in the sample, but is reported to more accurately quantify PCB present in sample that has undergone environmental alteration.

Note: There were several non-target peaks.

AUTHORIZED SIGNATURE:

William A. Kotas  
Sr. Laboratory Representative  
Robert B. Wagner  
Laboratory Director



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5/11/2010  
SPECTRUM ANALYTICAL  
830 SILVER ST  
AGAWAM, MA 01001  
CONTACT: NICOLE LEJA



CUSTOMER ID: AMBIENT  
MATRIX: POLYURETHANE FOAM  
DATE RECEIVED: 4/27/2010 TIME: 10:24  
SAMPLED BY: A. KOVAL  
CUSTOMER PO: N/A

NEA ID: AN04539 NEA LRF: 10040179-03  
DATE SAMPLED: 04/23/2010 TIME: 12:06  
PROJECT: 78-98 RELAESCHI DRIVE  
LOCATION: NORTH HAVEN, CT  
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	PQL	UNITS	DATE ANALYZED	FLAGS
<b>EPA Method TO-4A</b>					
Aroclor 1016	ND	0.000347	ug/m <sup>3</sup>	05/05/2010	U
Aroclor 1221	0.000927	0.000347	ug/m <sup>3</sup>	05/05/2010	PB
Aroclor 1232	ND	0.000347	ug/m <sup>3</sup>	05/05/2010	U
Aroclor 1242	0.000706	0.000347	ug/m <sup>3</sup>	05/05/2010	AD
Aroclor 1248	ND	0.000347	ug/m <sup>3</sup>	05/05/2010	U
Aroclor 1254	ND	0.000347	ug/m <sup>3</sup>	05/05/2010	U
Aroclor 1260	ND	0.000347	ug/m <sup>3</sup>	05/05/2010	U
Total PCB Amount > Reporting Limit	0.001633				

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the PQL.

PQL (Practical Quantitation Limit). Denotes lowest analyte concentration reportable for the sample.

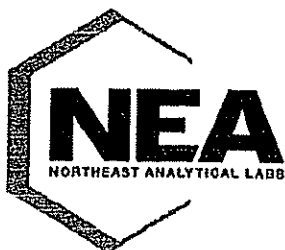
AD-Aroclor 1242 is being reported as the best Aroclor match. The sample exhibits an altered PCB pattern.

PB-Aroclor 1221 is being used to report an altered PCB pattern exhibited by the sample. Actual Aroclor 1221 is not present in the sample, but is reported to more accurately quantify PCB present in sample that has undergone environmental alteration.

Note: There were several non-target peaks.

AUTHORIZED SIGNATURE:

William A. Kotas  
Sr. Laboratory Representative  
Robert E. Wagner  
Laboratory Director



CERTIFICATE OF ANALYSIS  
5/11/2010  
SPECTRUM ANALYTICAL  
830 SILVER ST  
AGAWAM, MA 01001  
CONTACT: NICOLE LEJA



CUSTOMER ID: OFFICE  
MATRIX: POLYURETHANE FOAM  
DATE RECEIVED: 4/27/2010 TIME: 10:24  
SAMPLED BY: A. KOVAL  
CUSTOMER PO: N/A

NEA ID: AN04540 NEA LRF: 10040179-04  
DATE SAMPLED: 04/23/2010 TIME: 12:22  
PROJECT: 78-98 RELAESCH DRIVE  
LOCATION: NORTH HAVEN, CT  
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	PQL	UNITS	DATE ANALYZED	FLAGS
EPA Method TO-4A					
Aroclor 1016	ND	0.000348	ug/m <sup>3</sup>	05/06/2010	U
Aroclor 1221	0.00176	0.000348	ug/m <sup>3</sup>	05/06/2010	PB
Aroclor 1232	ND	0.000348	ug/m <sup>3</sup>	05/06/2010	U
Aroclor 1242	0.000845	0.000348	ug/m <sup>3</sup>	05/06/2010	AD
Aroclor 1248	ND	0.000348	ug/m <sup>3</sup>	05/06/2010	U
Aroclor 1254	0.000276	0.000348	ug/m <sup>3</sup>	05/06/2010	PF,J
Aroclor 1260	ND	0.000348	ug/m <sup>3</sup>	05/06/2010	U
Total PCB Amount > Reporting Limit	0.002881				

Notes: ND (Not Detected), Denotes analyte not detected at a concentration greater than the PQL.

PQL (Practical Quantitation Limit), Denotes lowest analyte concentration reportable for the sample.

J - Denotes an estimated concentration. The concentration result is greater than or equal to the Method Detection Limit (MDL) but less than the PQL.

AD-Aroclor 1242 is being reported as the best Aroclor match. The sample exhibits an altered PCB pattern.

PB-Aroclor 1221 is being used to report an altered PCB pattern exhibited by the sample. Actual Aroclor 1221 is not present in the sample, but is reported to more accurately quantify PCB present in sample that has undergone environmental alteration.

PF-Aroclor 1254 is being used to report an altered PCB pattern exhibited by the sample. Actual Aroclor 1254 is not present in the sample, but is reported to more accurately quantify PCB present in sample that has undergone environmental alteration.

Note: There were several non-target peaks.

AUTHORIZED SIGNATURE:

William A. Kotas  
Sr. Laboratory Representative  
Robert E. Wagner  
Laboratory Director



CERTIFICATE OF ANALYSIS  
5/11/2010  
SPECTRUM ANALYTICAL  
830 SILVER ST  
AGAWAM, MA 01001  
CONTACT: NICOLE LEJA



CUSTOMER ID: AMARR  
MATRIX: POLYURETHANE FOAM  
DATE RECEIVED: 4/27/2010 TIME: 10:24  
SAMPLED BY: A. KOVAL  
CUSTOMER PO: N/A

NEA ID: AN04541 NEA LRF: 10040179-05  
DATE SAMPLED: 04/23/2010 TIME: 12:52  
PROJECT: 78-98 RELAESCHI DRIVE  
LOCATION: NORTH HAVEN, CT  
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	PQL	UNITS	DATE ANALYZED	FLAGS
EPA Method TO-4A					
Aroclor 1016	ND	0.000344	ug/m <sup>3</sup>	05/05/2010	U
Aroclor 1221	0.00268	0.000344	ug/m <sup>3</sup>	05/05/2010	PB
Aroclor 1232	ND	0.000344	ug/m <sup>3</sup>	05/05/2010	U
Aroclor 1242	0.00179	0.000344	ug/m <sup>3</sup>	05/05/2010	AD
Aroclor 1248	ND	0.000344	ug/m <sup>3</sup>	05/05/2010	U
Aroclor 1254	0.000623	0.000344	ug/m <sup>3</sup>	05/05/2010	PF
Aroclor 1260	ND	0.000344	ug/m <sup>3</sup>	05/05/2010	U
Total PCB Amount > Reporting Limit	0.005090				

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the PQL.

PQL (Practical Quantitation Limit). Denotes lowest analyte concentration reportable for the sample.


AD-Aroclor 1242 is being reported as the best Aroclor match. The sample exhibits an altered PCB pattern.

PB-Aroclor 1221 is being used to report an altered PCB pattern exhibited by the sample. Actual Aroclor 1221 is not present in the sample, but is reported to more accurately quantify PCB present in sample that has undergone environmental alteration.

PF-Aroclor 1254 is being used to report an altered PCB pattern exhibited by the sample. Actual Aroclor 1254 is not present in the sample, but is reported to more accurately quantify PCB present in sample that has undergone environmental alteration.

Note: There were several non-target peaks.

AUTHORIZED SIGNATURE:

  
William A. Kotas  
Sr. Laboratory Representative  
Robert E. Wagner  
Laboratory Director



CERTIFICATE OF ANALYSIS  
5/11/2010  
SPECTRUM ANALYTICAL  
830 SILVER ST  
AGAWAM, MA 01001  
CONTACT: NICOLE LEJA



CUSTOMER ID: FIELD SPIKE-8082  
MATRIX: POLYURETHANE FOAM  
DATE RECEIVED: 4/27/2010 TIME: 10:24  
SAMPLED BY: A. KOVAL  
CUSTOMER PO: N/A

NEA ID: AN04542 NEA LRF: 10040179-06  
DATE SAMPLED: 04/23/2010 TIME: N/A  
PROJECT: 78-98 RELAESCHI DRIVE  
LOCATION: NORTH HAVEN, CT  
LAB ELAP#: 11078

PARAMETER PERFORMED	RESULTS	PQL	UNITS	DATE ANALYZED	FLAGS
EPA Method TO-4A					
Aroclor 1016	ND	0.100	ug	05/05/2010	U
Aroclor 1221	ND	0.100	ug	05/05/2010	U
Aroclor 1232	ND	0.100	ug	05/05/2010	U
Aroclor 1242	ND	0.100	ug	05/05/2010	U
Aroclor 1248	ND	0.100	ug	05/05/2010	U
Aroclor 1254	0.958	0.100	ug	05/05/2010	
Aroclor 1260	ND	0.100	ug	05/05/2010	U
Total PCB Amount > Reporting Limit	0.958				

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the PQL.  
PQL (Practical Quantitation Limit). Denotes lowest analyte concentration reportable for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas  
Sr. Laboratory Representative  
Robert E. Wagner  
Laboratory Director

PAGE 1 OF 1

LRF # \_\_\_\_\_  
 (NEA USE ONLY)

**DISPOSAL REQUIREMENTS: (To be filled in by Client)**

☐ RETURN TO CLIENT.

☒ DISPOSAL BY NORTHEAST ANALYTICAL

☐ ARCHIVAL BY NORTHEAST ANALYTICAL

Additional charges incurred for disposal (if hazardous) or archival. Call for details.

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CLIENT (REPORTS TO BE SENT TO): <b>Stokes Consulting Services, Inc.</b>										PROJECT/INVOICE NAME: <b>78-98 Rebesch, Die</b>									
PROJECT MANAGER: <b>John Imml</b>										PROJECT LOCATION (CITY/STATE) ADDRESS: <b>North Haven, CT</b>									
PHONE: <b>(860) 948-1628</b>										REQUIRED TURN AROUND TIME: 									
SAMPLED BY: (Print Name) <b>Anthony Kowal</b>										NAME OF COURSE (IF USED): <b>Seafarmer Analytical</b>									
SAMPLED FROM: <b>Stokes Consulting Services, Inc.</b>										DATA REPORT: <input type="checkbox"/> CLP <input type="checkbox"/> Certificates Only									
ELECTRONIC RESULTS FORMAT: <input type="checkbox"/> EXCEL (XLS) <input type="checkbox"/> FAX #										E-MAIL ADDRESS:									
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